From: Todd.Powell
To: Caleb.Light
Subject: FW: Eagle Gold Mine HLF-CN Management Review implementation
Date: January 30, 2023 3:09:00 PM
Attachments: 20230130_LTR_ MRBtoVGC_HLF-CNimplementation.pdf
image001.png
20230130_Appendix1_HLF-CNimplementation_MRBexpectations.pdf
220731_Piteau Full Report to TG-Eagle Gold Review FINAL.pdf

FYI

From: Monica.Nordling <Monica.Nordling@yukon.ca>
Sent: January 30, 2023 2:25 PM
To: Mark Ayranto <mayranto@vgcx.com>
Cc: Hugh Coyle <hcoyle@vgcx.com>; John.Minder <John.Minder@yukon.ca>; 'chief@nndfn.com' <chief@nndfn.com>; 'Lands Manager' <landsmanager@nndfn.com>; Todd.Powell <Todd.Powell@yukon.ca>
Subject: Eagle Gold Mine HLF-CN Management Review implementation

Good afternoon Mr. Ayranto,

Please see attached correspondence from Todd Powell, Director of Mineral Resources Branch, regarding the Eagle Gold Mine HLF Operations and Cyanide Management Desktop Review and subsequent implementation expectations.

Yukon

Monica Nordling (she/her)
Mining Technologist
Energy, Mines and Resources | Major Mines
T: 867-667-5604 | Yukon.ca

Yukon

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.

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,

T. Powell

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 m^3/hr) along side operational flow rate of (1500 m^3/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.

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.

PITEAU ASSOCIATES
Geotechnical and Water Management Consultants

EAGLE GOLD HEAP LEACH FACILITY AND CYANIDE MANAGEMENT REVIEW

Prepared for

ENERGY, MINES & RESOURCES, YUKON GOVERNMENT

JULY 2022

PROJECT 4667

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RECORD OF AMENDMENTS

This report has been issued and amended as follows:

Issue	Description	Date	Prepared by	Reviewed by
1	Draft for EMR review	May 17, 2022	Mark E. Smith, P.Eng. Chief Advisor, Geotechnical	Krishna Sinha Corporate Consultant
2	Draft for VGC review	(varies by technical memo[1])	Mark E. Smith, P.Eng. Chief Advisor, Geotechnical	Krishna Sinha Corporate Consultant
3	Final to EMR	July 31, 2022	Mark E. Smith, P.Eng. Chief Advisor, Geotechnical	Krishna Sinha Corporate Consultant

[1] Only the draft technical memos (Appendices A to E) were issued to VGC for comment, not the main report as it is a summary of those memos and does not present new information.

1 INTRODUCTION

The Eagle Gold mine is owned and operated by Victoria Gold Corp (VGC) and is located in central Yukon, approximately 375 kilometers north of Whitehorse and near the town of Mayo. Construction of the heap leach facility (HLF) began in 2017 and first gold production occurred in 2019. The project uses conventional open pit mining and cyanide heap leaching in an impounding valley-fill configuration to produce a target of 2,406,000 troy ounces of gold over an expected 13-year operating life. The nominal ore crushing rate is 29,500 tonnes per day (tpd). Ore is stacked on the heap for approximately 275 days per year and leaching continues for 365 days. Eagle Gold is operating under authority of Water Use License QZ14-041-01 (WUL) and Quartz Mining License QML-0011 (QML), collectively referred to herein as “Licenses.”

As requested by Yukon Energy, Mines & Resources (EMR), Piteau Associates Engineering Ltd. (Piteau), has completed a review of various documents related to the operations of the HLF and cyanide management. This review was conducted in phases from January to July 2022, with each phase focused on a set of related documents. The results of each review phase have been documented in a total of five separate technical memos, which were published on the following subjects:

- In-heap Pond pumping test procedure;
- Water balance modeling;
- Cyanide Management Plan (CMP);
- Heap Leach Facility (HLF) Operation, Maintenance and Surveillance (OMS) Manual; and,
- HLF Contingency Water Management Plan (CWMP) and Emergency Response Plan (ERP).

This report was prepared by Mark E. Smith with assistance of Dr. Krishna Sinha, both of Piteau. This report presents only a summary of those technical memos along with tables of recommendations. For more detail, the reader is referred to Appendices A through E, which contain the complete technical memos. Section 3 presents a brief background on each of the five technical memos, and Tables 4.1 through 4.5 summarize the recommendations.

2 BACKGROUND

During the initial two years of operation Eagle Gold experienced a variety of issues related to construction, commissioning, and early-stage operations, ranging from relatively minor issues to reportable cyanide spills and inadequate storage capacity in the ponds. One outcome of these events was the engagement of Piteau by EMR.

As required by the WUL, VGC obtained a variety of reports of external reviews and updates of prior studies, including:

- Annual water balance modeling updates;
- Annual inspection reports from the HLF Engineers of Record (EOR);
- Annual physical stability assessments;
- Review of the cyanide management plan; and,
- Performance review of HLF Phase 1.

These reports helped inform the Yukon Government on a variety of aspects of the project. They also provided significant input for the Piteau review. The licenses also required the preparation and submittal of certain studies, plans and manuals, the review of some of which was the key objective of the Piteau work. These are:

- Annual Water Balance Modeling Report, Forte Dynamics, 25 March 2021;
- Water Balance Modeling for the Eagle Gold Mine Proposed HLP Facility, Final Design, The Mines Group, 16 Jan. 2019;
- Cyanide Management Plan, Strata Gold Corporation, March 2019;
- Summary Audit Report, Review of the Cyanide Management Plan and Implementation, Forte Dynamics, 2 Feb. 2021;
- Five Spill Reports for spills occurring in July 2020, March 2021, June 2021, and July 2021;
- In-heap Pump Testing Procedure, Forte Dynamics, Rev. 0, 21 Feb. 2020;
- Heap Leach Facilities Operation, Maintenance, and Surveillance Manual, Victoria Gold Corp, Jan. 2020;
- HLF Contingency Water Management Plan, Victoria Gold Corp, Jan. 2020; and,
- Heap Leach and Process Facilities Emergency Responses Plan, Strata Gold Corporation., May 2019.

In addition, there were several historic reports provided by EMR. These included the Phase 1 and 2 heap leach facility design reports, the Phase 1 construction report, the original (pre-construction) water balance modeling, the two key licensing documents (QZ14-041-1 and QML-0011), and a variety of inspection and spill reports. In all, these documents total about 9,000 pages. Detailed review of these was not within the scope of this review; however, they were used as references to support Piteau's reviews, which resulted in the five technical memos.

3 TECHNICAL MEMOS

Each technical memo is summarized in this section and the recommendations reproduced in Tables 4.1 through 4.5. The technical memos are included as Appendices A through E.

3.1 In-heap Pond Pumping Test Procedure

This procedure was prepared by Forte Dynamics and is required by WUL Clauses 67 and 68. The purpose of this test is to determine the available storage within the In-heap Pond by obtaining direct measurements of the available porosity within the granular material (crushed stone) filling the pond. The review found that the procedure is generally sound but needs some refinement to produce reliable results.

The specific recommendations are summarized in Table 4.1 and the technical memo is presented in Appendix A. As of July 2022, the test procedure has been revised and the pump test performed. Piteau has not reviewed the results of that testing.

3.2 Water Balance Modeling

Water balance modeling was performed for the heap leach facility as part of final design, then updated annually starting with operations in July 2019. The original water balance model was based on a spreadsheet model prepared by The Mines Group. The annual updates have been prepared by Forte Dynamics and are based on a GoldSim model. GoldSim is a good platform for heap water balance modeling and is successfully used on many other gold projects around the world. One advantage of GoldSim over other platforms is that it can also model a wide range of process factors and be easily integrated into operations.

This review focused on the Forte model prepared in 2021 for operations during 2020 as it was the most recent at the time of review. Just as the technical memo was being finalized, the 2022 model update (for 2021 operations) was published, and that was quickly reviewed principally from the perspective of assessing the total available volume in the ponds as compared to the Desired Available Storage (DAS). However, this was not a detailed review.

The water balance review identified some discrepancies in key model inputs, including the DAS and solution flow to and discharged from the Events Pond. The review also found that the modeling had not reasonably forecast the pond volumes and the potential for infringement on the DAS for the springs of 2020, 2021 and 2022, suggesting that the inputs may be incomplete and that the model requires calibration.

The specific recommendations are summarized in Table 4.2 and the technical memo is presented in Appendix B.

3.3 Cyanide Management Plan

This review included the Cyanide Management Plan (CMP) prepared by Strata Gold Corporation as well as the Summary Audit Report (Forte Dynamics) and Spill Reports (VGC) for cyanide

solution spills which occurred during the 13-month period ending in July 2021. The CMP was also compared to the International Cyanide Management Code (Code). As the Forte audit report notes in Section 1, the CMP was developed prior to commissioning of the project and has been in place unchanged since then, even though the permits require annual internal review and updating of the CMP. As such, the CMP is somewhat dated and out of sync with actual operations. The Piteau review found some important inconsistencies between actual management practices on site, the requirements on the CMP, the Code, and industry practices.

The specific recommendations are summarized in Table 4.3 and the technical memo is presented in Appendix C.

3.4 Operation, Maintenance and Surveillance Manual

The OMS Manual is required by WUL Clause 103, and Clause 111, states that “The Licensee must comply with the monitoring programs and studies in the EMSAMP and in the HLF OMS Manual.” The OMS is a solid manual with some very good detail. Some portions are light on specifics, and, in a few places, it is incomplete or has gaps between the OMS Manual and both the CWMP and the ERP. The linkage between the OMS Manual and the CWMP and ERP is unclear and the OMS Manual lacks specific triggers for implementation of either the CWMP or ERP, even where such triggers are required by the WUL (see for example WUL Clause 48). Clarified or improved linkages between the OMS and other plans are needed. Further, there are provisions of the OMS Manual which are not being implemented, including (a) generally keeping the Events Pond dry and halting any transfers into the HLF when the DAS volume is not available (Table 6.3-1, Sections 7.9 and 9.2.2), and (b) using manual control of the LDRS pumps rather than level-activated pumps. Critically, there are some issues of non-compliance with the WUL requirements, including regular and extended encroachment in to the Desired Available Storage.

The specific recommendations are summarized in Table 4.4 and the technical memo is presented in Appendix D.

3.5 HLF Contingency Water Management and Emergency Response Plans

The Heap Leach Facility (HLF) CWMP is required according to WUL Clause 102. The ERP is required by QML Schedule B. Overall, both plans form good frameworks and are consistent with the level of detail expected for early operations. The CWMP was last updated in January 2020, a few months following initial gold production. The ERP was last revised in early 2019, prior to completion of construction and commissioning of the HLF. Both plans lack some important as built and operational details, and during the first years of operation the site has likely adapted some of the early plans and procedures to accommodate conditions on the ground. In addition, during the 13 months ending July 2021 the site reported four cyanide-related spills and performed investigations into each, and has been the subject of actions by the Yukon Government related to non-compliance with the WUL requirements related to DAS. Further, in the 2021 annual HLF

Inspection Report[2] the Engineer of Record listed six required and three recommended updates to the OMS. Taken together, this is compelling evidence that it is time to update the plans, addressing those issues as well as the areas specifically discussed in the technical memo.

The specific recommendations are summarized in Tables 4.5a and 4.5b, and in the technical memo presented in Appendix E.

4 RECOMMENDATIONS

This section summarizes the recommendations as presented in the technical memos.

Table 4.1: Summary of Recommended Actions for In-heap Pump Test Procedure

Topic	Recommended Actions
Minimum pond level	1. The test methodology should reflect the minimum pond level (elevation) as set forth in WUL Clause 68.
Test only pre-wetted zones	2. The test should be performed in a manner to ensure that the ore within the recovery portion of the test (testing Protocol B) is at or near field capacity before the start of the test.
Recovery time	3. Sufficient recovery time should be allowed between each test (Protocol A + B) to ensure that steady state conditions are reestablished.
Test precision	4. The test method should be revised to give better precision. This may include some combination of longer test duration and greater flow rate to produce larger changes in pond levels. Alternatively, the effective porosity could be taken as the mean value less 1 or 2 standard deviations.
Drawdown cone	5. The effect of such drawdown on the tested volume should be estimated, and a tolerance on the final measurement be determined (e.g., +/-x% porosity), or verified mathematically that this effect is negligible.
Variation over depth	6. The test should be repeated over a range of pond elevations so that variability in the ore with depth is considered.
Test acceptance criteria	7. Test acceptance criteria should be included in the test method to confirm the validity of the results. For example, the results of each test could be required to be within an acceptable range from the mean value or with an acceptable standard deviation.

[2] Forte Dynamics, Inc., “2020 Annual Inspection of Eagle Gold HLF,” 19 March 2021.

Table 4.2: Summary of Recommended Actions for HLF Water Balance Modeling

Topic & Tech. Memo Section No.	Recommended Actions
DAS (2.1.1)	2.1a: Future water balance modeling reports should use the same DAS volumes as set in the WUL and HLF CWMP.
DAS Forecasting (2.1.2)	2.1b: The annual water balance modeling should include all material inputs and outputs from the system including transfers from the LDSP. 2.1c: The model should be calibrated so that past periods are accurately reproduced with respect to pond volumes and infringement on the DAS. This should be done for 2021 (the report to be issued spring 2022) and then again once the In-Heap pond volume verification test is completed, should that test result in a material change in the In-Heap pond capacity. 2.1d: Operations should not transfer solution from the LDSP to the Events Pond in the spring or early summer.
Ore Characteristics (2.2)	2.2a: The actual values for initial and residual moisture content should be used in the model. 2.2b: The ore properties (initial moisture, residual moisture, and active leaching moisture) should be verified in the model calibration process. The initial moisture values from the annual report can be used immediately (i.e. for the 2021 annual water balance model update) and in situ residual moisture content values ideally obtained before the next model update (2022 update).
Process Flow Rates (2.3)	2.3: The forecast water balance modeling should consider the higher flow rate (2,070 m^3/hr) either solely or as an alternative alongside the lower rate (1,500 m^3/hr).
In-Heap Pond Capacity (2.4)	2.4a: The In-Heap pond capacity should be limited in the model at the WUL cap of 74,565 m^3 for the 2021 update, and then revised for future updates based on the results of the field verification testing. 2.4b: The In-Heap Pond capacity verification testing should be completed by mid 2022.

Table 4.3: Summary of Recommended Actions for Cyanide Management

Topic & Tech. Memo Section No.	Recommended Actions
ADR Plant Containment (2.1)	2.1a: The ADR plant should be retrofitted to provide adequate containment as described in the CMP and the ADR Plan, or otherwise as intended by the Cyanide Code and best industry practices. This retrofitting should include measures adequate to ensure full containment. The retrofitting envisioned in this recommendation should be relatively minor work. This should be completed in 2022. 2.1b: The CMP and ADR Plan should be updated to reflect current conditions. 2.1c: The next audit of the CMP should include a site visit, thorough reconciliation of as-built conditions with the design, applicable plans, and license requirements.
Process Solution Spills (2.2)	2.2a: All solution piping mechanical connectors located close to the edge of containment should be retrofitted with guards or shields to prevent spray from escaping. In this context, close means close enough that spray could cross the edge of containment. The retrofitting should be completed within 90 days and new connections should include shielding at the time of installation. 2.2b: All areas where granular material crosses over the edge of containment should be sloped so that the flow direction is into the contained area. Such crossings should only be allowed in areas where the underlying geomembrane liner also slopes into the containment area. Existing crossings should be retrofitted within 90 days and new crossings constructed with appropriate protection. 2.2c: Where there is any risk of solution flowing through or over granular layers beyond containment, the areas should be retrofitted in ways which effectively eliminate this risk in all seasons. Retrofitting should be completed within 6 months, and new installations should include appropriate barriers at the time of construction. 2.2d: Inspection protocols should include routine inspection of mechanical connectors to ensure they are safely located or shielded, and frequent inspection of every location where granular material crosses containment (excluding areas where there is no process solution), possibly every shift. This should be implemented within 30 days. 2.2e: Spills of all nature are most common soon after commissioning major revisions or facility expansions. Special inspections and operator training should be implemented in advance of each expansion or significant change to operations. These special inspections should start before the completion of any major revisions or expansions and continue for 12 months after their completion.
Water Balance Management (2.3)	2.3a: Update Sections 5.3 and 5.4 of the CMP, including Figure 5.3-1, to reflect the current water management system, including flows directed from the LDSP to the EP and discharges from the EP. This should occur with the next CMP update. 2.3b: Protocols should be developed for transfers of storm water to the EP to verify that there is no cyanide in the EP so that the intent of Section 5.4.1 is not violated. This should be revised in the next CMP and EMSAMP updates.

TABLE 4.4: Summary of Recommended Actions for the OMS Manual

Topic & Tech. Memo Section No.	Recommended Actions
Heap Leach Facility Overview (3.1)	3.1a: The OMS and related documents (including the water balance model) should be revised to be more closely aligned with each other, including make-up water and surface run-off storage in the Events Pond and compliance with WUL Clauses 48 and 57. 3.1b: The Emergency Pond should be designed, constructed, and commissioned by the fall of 2022. The pond should be lined and at have a minimum capacity of 90,000 m^3. 3.1c: Using an updated and calibrated water balance as a guide, evaluate whether raincoats should be installed during 2022 to reduce the water entering the system in the spring of 2023. Repeat this each year before winter. 3.1d: Include a map or maps of the instrumentation and monitoring locations in the OMS.
Engineering Design (3.2)	3.2a: Verify that the spillways for both the In-heap Pond and Events Pond meet the requirements of the WUL including the peak flows from future pad expansions and designing the spillway for the critical phase of the HLF. If not, implement the needed revisions or retrofits to ensure they do. 3.2b: Include ice management procedures to ensure that ice does not block the spillways of the In-heap Pond or Events Pond.
Ore Stacking Plan (4.1)	4.1: Reconcile the water balance model updates with the stacking rate and period set forth in the OMS and the limitations of QML-0011 Section 9.6. Clarify the relationship between daily ore stacking rate and stacking days per year to be in compliance with the QML-0011 Section 9.6.
In-heap Pond (4.2)	4.2a: The term “trigger” should be more consistently and accurately used and be consistent with MAC guidelines. 4.2b: Add triggers and actions within the OMS to clarify when the CWMP (and any other relevant plans or SOPs) should be implemented. These would include but may not be limited to providing the required available storage and implementing actions when this encroaches upon the DAS. This recommendation can be combined or implemented concurrently with Recommendation 6.1b. These triggers and response actions should also be consistent with the QPOs in CDA (2019), or QPOs should be addressed separately.
Solution Collection and Delivery System (5.1)	5.1a: The actions should further include analyzing the cause of the leak or break and making changes not just to the affected components but any other components which may pose similar risks. A good example of this would be the subject of the VGC spill report dated July 30, 2021 (leak at a blind flange) where the response should apply to any and all mechanical fitting near the edge of containment. 5.1b: The OMS should include specific procedures to ensure that granular material placed near the edge of the leach pad cannot leave containment nor allow cyanide solution to leave containment.
Earthquake Occurrence (5.2)	5.2 Provide specific criteria to trigger the Earthquake Occurrence inspections such as that set forth in Table 5.2-1 of the ERP.
Flood Event (5.3)	5.3: Include updating the operational water balance model and implementing any measures indicated by the water balance model results in a timely manner.

Topic & Tech. Memo Section No.	Recommended Actions (continued)
Maintenance Schedule and Spare Parts (5.4)	5.4: Include in the OMS (or reference a separate SOP) with specific inventory requirements for critical parts and supplies including the materials to implement the WUL requirement for raincoats starting with Phase 2.
Surveillance and Response, General (6.1)	6.1a: Include the MAC 2019 and 2021 recommendations (as applicable) in the OMS, including the recommendations for Trigger Action Response Plans in Appendix 3 of MAC 2019. 6.1b: The triggers and response actions should be coupled with the existing dam break analysis (and updated when that analysis is updated) for things such as issuing warnings and evacuating the downstream areas (on- and off-site, as applicable) in the event of a risk of heap embankment failure. Evacuation routes should be well removed from expected inundation zones.
Heap Leach Facility Surveillance and Response (6.2)	6.2a: Add a network of survey prisms (with routine surveying and analysis of the results) to the crest and downstream slopes of both the In-heap Pond and Events Pond embankments. 6.2b: Specify the frequency of surveillance for instruments such as inclinometers which cannot be automatically reported. 6.2c: Add a discussion about how critical instrumentation (such as piezometer) data will be retrieved during an extended power outage. 6.2d: Where practical and consistent with shift rotations, group types of instruments or monitoring measurements under the responsibility of the same person or group of people/department. 6.2e: Reconcile the language of Table 9.1-1 with the balance of the language of Section 9 and actual practice.
Instrumentation, Monitoring and Response (6.3)	6.3a: Re-evaluate the trigger levels (pond 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. 6.3b: Add trigger levels and actions related to encroachment on the DAS, with the first triggers before the DAS is encroached to allow operators to avoid that condition, and then actions when the DAS is encroached to bring it back into compliance within 30 days along with halting any solution transfers into the process system. These should be consistent with the triggers and actions set forth in the CWMP and ERP. 6.3c: Add triggers to implement the CWMP.

Topic & Tech. Memo Section No.	Recommended Actions (continued)
LDRS Levels (6.4)	6.4a: The In-heap Pond RL 3 responses should be more aggressive and include mandatory actions to reduce the leakage flow rates to RL 2 in a timely manner. RL 3 should also include an engineering assessment of the capacity of the LDRS system to ensure (with a high factor of safety) the flow rates are not pressurizing the secondary (bottom) liner. 6.4b: The Events Pond RL flow limits should be significantly lower for all levels (RL 1 through RL 4), and the response actions for RL 3 should mandate repair of the liner during the next dry season after RL 3 was reported, along with reducing pond water levels to reduce leakage rates in the interim. 6.4c: Both ponds should have response actions which trigger implementation of the CWMP when RL 3 is first reached so that the pond levels can be lowered and thus the leakage rates are also lowered. 6.4d: Level-actuated pumps should be used for the LDRS sumps in both the In-heap Pond and the Events Pond and the flow and level date be recorded and reported. 6.4e: The recommendations resulting from annual inspections, performance reviews, and any other reports or studies required by the WUL or QML should be implemented in a timely manner. This includes implementing all the recommendations of Forte (2021a, b, 2022) and BGC (2019).
Movement (6.5)	6.5a: As required by Forte (2022), at least 8 survey monuments should be installed along the embankment crest. These monuments should be anchored in concrete to reduce noise and detect movement more reliably. 6.5b: Install a second inclinometer in the embankment and add this to the monitoring program with monthly or more frequent monitoring and align the language of this section with Table 9.1-1. 6.5c: Alert levels and actions should be added to the monitoring of the survey monuments and inclinometers. The actions should include increasing the frequency of monitoring in the event there is evidence of movement or embankment distress.
Seepage, Underdrain Monitoring (6.6)	6.6: Add trigger levels and actions.
Event-Driven Inspections (6.7)	6.7: Define all events that trigger Event-Driven Inspection, such as the perception of ground motion from an earthquake, the size or intensity of a large precipitation event, or the size or extent of a slide in the heap (since the lifts are stacked at the angle of repose, small, local slides are very common but generally do not require special inspections).
Comprehensive Dam Safety Review (6.8)	6.8: Increase the frequency of Dam Safety Reviews to less than 5 years after commissioning (ideally with the first occurring in 2022), and then again in the year following each leach pad expansion, and in the years following decommissioning unless the dams are breached and can no longer impound water.

Topic & Tech. Memo Section No.	Recommended Actions (continued)
Reporting (6.9)	6.9a: Include routine updates to the GoldSim water balance model using the monthly date to allow better management of the ponds and reduce the frequency and severity of encroachments into the DAS. The modeling results should also be linked to trigger levels and actions. For example, if the March model update forecasts an April or May encroachment into the DAS, there should be actions set forth to avoid this condition 6.9b: Where flowmeter data is required to be reported under the WUL or QML or are otherwise critical to the safe operations of the HLF to avoid extended data gaps, either redundant flowmeters should be installed, or protocols put in place to ensure that quick repair or replacement occurs without regard to the season.
Back-up Power (6.10)	6.10: Provide information on required back-up power and the generator capacity so that operators can verify that there is always sufficient back-up power available.
Pump Redundancy (6.11)	6.11a: Evaluate the pump redundancy in terms of solution accumulation during an extended multi-pump failure and provide either adequate pond capacity or full replacement kits on site. Also evaluate the risk of a motor control center (MCC) failure and the need for a back-up MCC, spare parts, or anther work around. 6.11b: The Events Pond pump should have a spare (either a complete pump and motor ready to install, or a complete repair kit for both the pump and motor).

TABLES 4.5a: Summary of Recommended Actions for the CWMP

Topic & Section No.	Recommended Actions
Contingency Water Management (3.1)	3.1: Implement triggers linked with response actions consistent with WUL Clause 48 and the recommendations of MAC (2019 & 2021). These triggers and actions should be aligned with and, where applicable, linked to those in both the OMS and ERP. Said triggers and actions, where applicable to the In-heap Pond, should also include measures to protect the embankment.
In-heap Dynamic Storage (3.2)	3.2a: The dynamic storage capacity should be expressed relative to the key variables influencing it and provide operators a number of simple ways to conservatively estimate the capacity using available information. 3.2b: Increasing dynamic storage should also address the impacts on the heap draindown under a pumping system failure scenario when the 5th pump has been placed into service.
Snowpack Management (3.3)	3.3a: Develop specific triggers and response actions to implement the intent of WUL 102c. These should include triggers to implement actions such as snow removal from the heap (and methods for appropriate disposal in accordance with WUL Clauses 89 and 90), and other methods to reduce freshet. 3.3b: Apply an appropriate constitutive model using site-specific data to estimate both peak and seasonal snowmelt volumes. Calibrate this model to verify its reliability and verify there is sufficient pond capacity available to safely store the solutions or implement other management methods such as raincoats to reduce freshet volumes to manageable levels.
Total Storage Vol. Available (3.4)	3.4: A range of available volumes along with key variables influencing them should be cited rather than fixed (and potentially optimistic) quantities for dynamic storage.
Water Treatment Plant (3.5)	3.5a: List the minimum daily capacity of the MWTP to treat HLF solutions as required by WUL Clause 103e. 3.5b: List the required inventory of reagents and supplies along with their quantities to operate the MWTP and provide an inspection and reporting schedule to verify the inventories are maintained. Alternatively, maintain said list in the MWTP operating plan and reference that in the CWMP.
General (3.6)	3.6: Provide triggers in the CWMP for implementing the ERP.

TABLES 4.5b: Summary of Recommended Actions for the ERP

Topic & Section No.	Recommended Actions
General (4.1)	4.1: Update the plan to reflect current operating conditions and as built facilities.
MAC and CDA Recommendations (4.2)	4.2: Add additional detail to the ERP to bring it into alignment with MAC 2019, MAC 2021, CDA 2013, and CDA 2019.
Emergency Classification (4.3)	4.3: Add detail and specificity to the table as consistent with current operations, including the ADR plant.
Emergency Scenarios, Causes, Prevention (4.4)	4.4: Add details and clarify as needed. Tie Preventative Measures, Site Response, Potential Effects, and Follow Up to specific causes.
Evacuation (4.5)	4.5a: Clearly identify authority and trigger events to order evacuation and make it clear that rapid evacuation is essential when there is a potential embankment failure. 4.5b: Update Figure 8.1-1 to reflect as built conditions and revise the evacuation routes to provide quicker access to high ground and to keep evacuation routes away from the inundation zone. Different routes may be needed for different locations. 4.5c: Expand Figure 8.1-1 or provide a second figure to show the entire extend of the inundation zone.

5 LIMITATIONS AND CLOSURE

The information presented in this report represents the conclusions from the Piteau review of the documents and limited discussion with EMR and Eagle Gold staff, along with representatives of First Nation Na-Cho Nyäk Dun. Conditions did not permit a site visit or in-person meetings. This can have a limiting effect on the review process. Follow-up in-person meetings and a site visit are recommended during 2022.

The enclosed technical memos presented in Appendices A through E are an integral part of this report. This report must be interpreted and applied in this context. This report has been prepared for the sole use of the Yukon Government. No warranty is expressed or implied, and no representation of any kind is made to other parties with whom Piteau Associates Engineering Ltd. has not entered into a contract.

We trust the above is adequate for your present needs. Please contact us if you have any questions, comments, or concerns.

Respectfully submitted,

PITEAU ASSOCIATES ENGINEERING LTD.

PERMIT TO PRACTICE
PITEAU ASSOCIATES ENGINEERING LTD.
SIGNATURE _____
Date _____
PERMIT NUMBER PP457
Association of Professional Engineers of Yukon

YUKON TERRITORY PROFESSIONAL ENGINEER
MARK E. SMITH

Mark E. Smith, P.Eng. (YT)
Chief Advisor, Geotechnical
31 July 2022

LIST OF APPENICES:

Appendix A	Technical Memo, In-Heap Pond Pump Testing
Appendix B	Technical Memo, Water Balance Modeling
Appendix C	Technical Memo, Cyanide Management
Appendix D	Technical Memo, OMS
Appendix E	Technical Memo, CWMP and ERP

APPENDICES A-E
TECHNICAL MEMOS

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APPENDIX A

MEMORANDUM

To: Monica Nordling

Cc: Erin Dowd

Date: Final 31 July 2022

From: Mark E. Smith

Re: In-Heap Pond Pumping Test Procedure, Forte Rev. 0, 21 Feb. 2020
Victoria Gold Corp (VGC), Eagle Gold Mine, WUL QZ14-041

Monica,

This memo discusses the results of Piteau's review of the in-heap pond pumping test procedure developed by Forte Dynamics (Forte) and presented in their report revision 0, dated 21 February 2020. This test is required by Clauses 67 & 68 of the Water Use License (WUL: QZ14-041) to verify the available storage capacity within the in-heap pond. Said clauses require that the verification test be performed by the time the stacking of Lift 9 on the heap is completed (forecast by VGC to be Q3 or Q4 of 2022), and further specify that the pond level must be at the greater of 933 m elevation or 2 m above the top of the 12 mm crushed ore zone. This memo was first issued as a draft in February 2022. This final version addresses comments from EMR and VGC.

The procedure developed by Forte is sound but could use some improvement. Specifically:

1. The WUL sets a minimum elevation of the pond level to run this test, which is not reflected in the test method.
2. If the test is performed in a zone of dry ore (i.e., not previously wetted by leaching), the measured porosity would be higher than the effective or available porosity.
3. Repeating test runs in a short period of time, as considered in the test protocol, may not produce steady state conditions, since each test (Protocol A + B) requires at least 2.5 hours to complete. Thus, 5 tests will require at least 12.5 hrs, by which time the effects of changing the PLS pumping rate may be affecting the flow into the in-heap pond (depending in part on where on the heap the solution is being applied).

4. The precision of the test may be inadequate to give reliable results, even with a series of 5 tests. That is, the pond level change may be less than 20 mm[1] after the maximum specified test duration of one hour (calculated for a 10% flow rate change at an initial pond elevation of 933 m).
5. The volume calculations ignore the drawdown cone and the gradient from inflowing PLS.
6. The physical properties of the ore likely change with depth, both because of material gradation and because of the relationship between in situ density and depth, though the test as designed will only determine the effective porosity at one depth.
7. There are several potential variables which could affect the reliability of the test results, including those cited above, though the test method includes no procedures to test the statistical validity of the results.

Recommendations:

1. The test methodology should reflect the minimum pond level (elevation) as set forth in WUL Clause 68.
2. The test should be performed in a manner to ensure that the ore within the recovery portion of the test (testing Protocol B) is at or near field capacity before the start of the test.
3. Sufficient recovery time should be allowed between each test (Protocol A + B) to ensure that steady state conditions are reestablished.
4. The test method should be revised to give better precision. This may include some combination of longer test duration and greater flow rate to produce larger changes in pond levels. Alternatively, the effective porosity could be taken as the mean value less 1 or 2 standard deviations.
5. The effect of such drawdown on the tested volume should be estimated, and a tolerance on the final measurement be determined (e.g., +/-x% porosity), or verified mathematically that this effect is negligible.
6. The test should be repeated over a range of pond elevations so that variability in the ore with depth is considered.
7. Test acceptance criteria should be included in the method to confirm the validity of the results. For example, the results of each test could be required to be within an acceptable range from the mean value or with an acceptable standard deviation.

Additionally, given that there was an infringement on the Desired Available Storage (DAS) in 2020, 2021 and 2022, this verification test should be performed as soon as practical, ideally before the 2022 spring freshet, and the water balance model updated as the results indicate

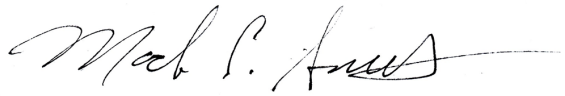
Closing note: VGC completed this test before finalization of this memo, using a revised testing protocol. The test results have not been reviewed by Piteau.

[1] Typical vibrating wire piezometer (VWP) accuracy is 0.1% of full range with a resolution of about 0.025% (i.e. 12.5 mm resolution for VWP full range of 50 m). This also effects the timing to run the 2nd and subsequent tests as the Protocol states that the pond level must be constant for 15 mins between tests but perceived “constant” is based on the VWP resolution.

Please let me know if you have any comments or questions on this.

Sincerely,

PITEAU ASSOCIATES USA LTD.



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APPENDIX B

MEMORANDUM

To: Monica Nordling

Cc: Erin Dowd

Date: Final 31 July 2022

From: Mark E. Smith

Re: Annual Water Balance Modeling Report, Forte Dynamics, 25 March 2021;
Water Balance Modeling for the Eagle Gold Mine Proposed HLP Facility, Final Design, The Mines Group, 16 Jan. 2018; and supporting documents
Victoria Gold Corp (VGC), Eagle Gold Mine

Monica,

This memo discusses the results of our review of the water balance modeling reports as provided by your office, with focus on the latest report from Forte Dynamics (25 March 2021, for 2020). Forte issued the 2021 report spring of 2022 but that report was only cursorily reviewed. Additionally, older reports were reviewed more cursorily to provide context; especially relevant are the 16 Jan. 2018 report issued by The Mines Group and the 2019 annual update issued by Forte 30 April 2020. This memo was first issued as a draft in March 2022. This final version addresses comments from EMR and VGC.

1. Summary

The approach used by Forte is appropriate. Water balance models early in a new heap leach project are always subject to uncertainty as some of the most important input parameters can only be determined with high confidence from operating experience and a relatively large data set. That said, the input parameters used by Forte generally seem suited to the purpose but should be subject to continued improvement and calibration to actual system behavior.

This review did identify some areas which are discussed in the following section. In general, the model forecasts underestimate the actual storage volumes and both the degree and length of infringements on the Desired Available Storage.

2. Discussion Points

2.1. Desired Available Storage (DAS)

The DAS is the intended minimum available storage to allow safe management of extreme event, as set by water use license (WUL) QZ14-041-1.

2.1.1. DAS Used in Modeling

The water balance modeling report states the DAS for each phase, as shown in Figures 20 and 21. The WUL also specified the DAS for each phase, and these values are also cited in the Heap Leach Facility Contingency Water Management Plan (HLF CWMP, Jan. 2020). Table 2.1 summarizes the values used in each document.

Table 2.1: Comparison of DAS (cubic meters) by Document

HLP Phase	Annual Water Modeling Balance Report, Forte (25 March 2021)	QZ14-041-1[1] & HLF CWMP (Jan. 2020)
1	183,259	198,340
2	195,000	210,640
3-5	212,000	227,340

When asked about this discrepancy in a request for information, VGC indicated that the model is not intended to provide commentary on license values. However, the annual water balance report was submitted as an appendix to the Annual Report and is required by QZ14-041-1, Clause 107, which states *"The Licensee must submit to the Board updated surface water balance and water quality models as part of each annual report. The models must include…any updates to the HLF water balance model…"* As such, the Forte report is reasonably read as a commentary on the WUL requirements. The use of lower DAS volumes than set in the WUL can result in misleading conclusions, especially in respect to actual or forecast infringements on the DAS. Further, the WUL specifically defines DAS (Part A – Definitions) and if an alternative definition is used in the annual water balance modeling report, it should be clearly stated.

2.1.2. Infringement on DAS (Actual and Forecast)

The 2021 report found that *"During the summer of 2020 there was a period in which the Total Available Storage Volume infringed upon the DAS as seen in Figure 20."* Fig. 20 shows that the average Total Available Storage briefly dropped below 150,000 cubic meters (m^3) (about 75% of the DAS) and that the total period of infringement ran from late April to mid-July, or about 2.5 months. When the WUL specified DAS volume is used, the infringement duration is increased to over 3 months. The 2021 VGC monthly reports (from WaterLine) show that the DAS was infringed upon from April 21 to July 20, 2021, essentially the same period as in 2020, and again from late April 2022 until at least the date of this report. Though the WUL prohibits the diversion of water into the circuit when the DAS is not available, such diversions continued in each of the above infringements.

The latest Forte deterministic modelling, on the other hand, predicted no infringements on the DAS for the entire period modeled (to 12/31/2029), with the minimum Total Available Storage predicted to remain above 290,000 m^3 for all of 2021, and above 250,000 m^3 for

[1] The DAS for Phase 1 is expressly stated in the WUL. For Phases 2 through 5 a method of determining the DAS is provided in the WUL and the values from the HLF CWMP are consistent with this methodology. The values cited in this column for Phases 2-5 are from the HLF CWMP.

the life of mine. The stochastic modeling estimated the minimum storage during 2021 to be 240,170 m^3 (1st percentile/lower "tail") and thus the report concluded there was *"no probability of an infringement on the DAS during the summer of 2021."* The 2019 annual water balance modeling update (Forte, 30 April 2020) deterministic forecast predicted no infringement on the DAS, and for 2020 and 2021 the Total Available Storage would be maintained above 290,000 m^3 (Fig. 20). The stochastic model predicted a 3.4% chance of infringing on the DAS for one week (Fig. 36). These predictions are consistent with those from the earlier modeling performed by The Mines Group (Water Balance Modeling for the Eagle Gold Mine Proposed Heap Leach Pad Facility, Final Design, 26 Jan 2018) which found *"There is essentially no risk of encroaching on the DAS during Phase 1, Phase 2, or Phase 3."* That report goes on to say, *"On average the month of May maintains the DAS of about 203,000* m^3 *and the most common value is on the order of 210,000* m^3*…there are circumstances that could occur which would encroach on the DAS and those circumstances are expected to occur about 2.7% of the time."* So far, they have occurred 100% of the time.

The predictions missing the infringements for the first three years of operations raises concerns about the reliability of the model forecasts. This could be a matter of lack of calibration and a need to use better estimates of the In-heap Pond capacity, and is probably related in part, to transferring surface runoff from the Lower Dublin South Pond (LDSP) during periods when that water quality does not meet discharge standards (spring and early summer). In the later regard, the monthly reports do not give volumes transferred before July 2020 and thus do not help debug the issue for that year. However, in 2021 they reported monthly transfers of 83000, 93801, 30685 and 20834 m^3 for April, May, June and July, respectively, for a total of 228,320 m^3. The Quartz MLU/Mining/Water Use Inspection Report of 2020-07-16 references a planned discharge from the Events Pond of 180,000 m^3 for a 45-day period commencing the week of July 27, 2020. The Inspection Report of 2020/08/20 confirmed a discharge of approximately 125,000 m^3 from the Events Pond. The Forte water balance model does not appear to consider either the volumes transferred to the Events Pond from the LDSP or the discharge from the Events Pond, and this could explain the discrepancy between forecast and actual infringements on the DAS in 2020 and 2021.

Recommendations:

2.1a: Future water balance modeling reports use the same DAS volumes as set in the WUL and the HLF CWMP.

2.1b: The annual water balance modeling should include all material inputs and outputs from the system including transfers from the LDSP.

2.1c: The model should be calibrated so that past periods are accurately reproduced with respect to pond volumes and infringement on the DAS. This should be done for 2021 (the report issued spring 2022) and then again once the In-heap Pond volume verification test is completed, should that test result in a material change in the In-heap Pond capacity.

2.1d: Operations should not transfer solution from the LDSP to the Events Pond in the spring or early summer.

2.2. Ore Characteristics

A key input into the water balance model is the initial ore moisture content (as ore is stacked on the heap). Section 2.2 of the Forte report cites this as 1.5%. However, the test data reported in the VGC Annual Report, Appendix D, cites initial moisture contents as high as 5.3% with an

average of about 3%. This increases the water inflow to the system by about 18,000 m^3 per month during ore stacking months. Thus, using a value for initial moisture content lower than actual will result in an under-estimate of water in the ponds.

An equally or more important parameter is the ore residual (post-leaching) moisture content. Forte estimated this value using an equation, but this should be replaced with in situ values now that there is some operational history. Small variations in this parameter can result in significant changes to the available storage.

Recommendations:

2.2a: The actual values for initial and residual moisture content should be used in the model.

2.2b: The ore properties (initial moisture, residual moisture, and active leaching moisture) should be verified in the model calibration process. The initial moisture values from the annual report can be used immediately (i.e., for the 2021 annual water balance model update) and in situ residual moisture content values ideally obtained before the next model update (2022 update).

2.3. Process Flow Rates

The Forte model uses 1,500 m^3/hr as the maximum flow rate of solution to the plant. However, the WUL allows up to 2,070 m^3/hr and VGC has indicated an intention to increase gold production (see, for example, the VGC webpage) which will require higher process flow rates. The use of a higher flow rate is expressly considered as part of the HLF Contingency Water Management Plan (HLF CWMP) (Sec. 3.3) and in the HLF Operations, Maintenance and Surveillance (OMS) Plan (Table 6.3-1). Thus, there is an important inconsistency between the water balance model and the operating and contingency plans.

Recommendation:

2.3: The forecast water balance modeling should consider the higher flow rate (2,070 m^3/hr) either solely or as an alternative to the lower rate (1,500 m^3/hr).

2.4. In-heap Pond Storage

The water balance model assumes that the In-heap Pond has a total available capacity of 117,141 m^3 (Sec. 2.4). However, the WUL limits the available storage at 74,565 m^3 unless and until a larger capacity is verified by field testing (QZ14-041-1 Clause 62). The WUL requires that the capacity be verified within 3 months of the completion of stacking of lift 9 of the heap and this is to be repeated after Phase 3 is commissioned (Clauses 70 & 71). As of July 2022, the In-heap Pond capacity verification test has been performed, but Piteau has not reviewed the results.

Recommendations:

2.4a: The In-heap Pond capacity should be limited in the model at the WUL limit of 74,565 m^3 for the 2021 update, and then revised for future updates based on the results of the field verification testing.

2.4b: The In-heap Pond capacity verification testing should be completed by mid 2022.

3.0 Summary of Recommendations

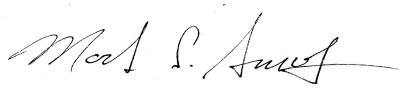
Table 3.1: Summary of Recommended Actions

Topic & Section No.	Recommended Actions
DAS (2.1.1)	2.1a: Future water balance modeling reports should use the same DAS volumes as set in the WUL and HLF CWMP.
DAS Forecasting (2.1.2)	2.1b: The annual water balance modeling should include all material inputs and outputs from the system including transfers from the LDSP. 2.1c: The model should be calibrated so that past periods are accurately reproduced with respect to pond volumes and infringement on the DAS. This should be done for 2021 (the report to be issued spring 2022) and then again once the In-heap Pond volume verification test is completed, should that test result in a material change in the In-heap Pond capacity. 2.1d: Operations should not transfer solution from the LDSP to the Events Pond in the spring or early summer.
Ore Characteristics (2.2)	2.2a: The actual values for initial and residual moisture content should be used in the model. 2.2b: The ore properties (initial moisture, residual moisture, and active leaching moisture) should be verified in the model calibration process. The initial moisture values from the annual report can be used immediately (i.e., for the 2021 annual water balance model update) and in situ residual moisture content values ideally obtained before the next model update (2022 update).
Process Flow Rates (2.3)	2.3: The forecast water balance modeling should consider the higher flow rate (2,070 m^3/hr) either solely or as an alternative to the lower rate (1,500 m^3/hr).
In-heap Pond Capacity (2.4)	2.4a: The In-heap Pond capacity should be limited in the model at the WUL cap of 74,565 m^3 for the 2021 update, and then revised for future updates based on the results of the field verification testing. 2.4b: The In-heap Pond capacity verification testing should be completed by mid 2022.

Please let me know if you have any comments or questions on this.

Sincerely,

PITEAU ASSOCIATES USA LTD.



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APPENDIX C

MEMORANDUM

To: Monica Nordling

Cc: Erin Dowd

Date: Final 31 July 2022

From: Mark E. Smith

Re: Cyanide Management Plan, Strata Gold Corp, March 2019;
Summary Audit Report, Review of the Cyanide Management Plan and Implementation, Forte Dynamics, 2 February 2021; Spill Reports; and supporting documents
Victoria Gold Corp (VGC), Eagle Gold Mine

Monica,

This memo discusses the results of Piteau's review of the Cyanide Management Plan prepared by Strata Gold Corp (March 2019), the Summary Audit Report, Review of the Cyanide Management Plan prepared by Forte Dynamics (2 February 2021), and the Independent Limited Assurance Review of Cyanide Management Plan prepared by SmartAccEss (February 2021). The focus of this technical memo is Forte's 2021 Summary Audit Report as it generally captures the other documents. Additionally, the International Cyanide Management Code (Cyanide Code) and the associated mining guide, protocol, and audit report template were referred to during Piteau's review. This memo was first issued as a draft in May 2022. This final version addresses comments from EMR and VGC.

1. Summary

According to the Scope of Work section of the Forte report, this audit is one of a series of *"annual audits of the Eagle Gold Cyanide Management Plan (CMP) and its implementation following the guidelines of the International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold (Cyanide Code, Code)…The scope did not include a Cyanide Code certification audit, nor did it include a dedicated site visit for the purpose of the audit given the challenges due to COVID-19. Rather, Forte relied on prior site visits and communications with the site team, photographs, electronic document review, and personnel interview to conduct the assessments remotely."* This approach seems reasonable; however, it is expected that future audits will include a dedicated site visit to the extent that Covid-19 pandemic restrictions allow.

As the Forte report notes in Section 1, the CMP was developed prior to commissioning of the project and has been in place unchanged since then, even though the permits require annual internal review and updating of the CMP. As such, the CMP is somewhat dated and out of sync with actual operations. As the operation is still new, this is not a significant concern, nor is it unusual. However, it is expected that this will be remedied soon. The Forte Audit Report does not generally make statements about compliance with the Cyanide Code or otherwise as to the adequacy of the CMP. Rather, the report provides some detail as to how the CMP implements each of the Principals of the Cyanide Code. The Independent Limited Assurance Review (SmartAccEss, February 2021) found that the Eagle Gold Mine substantially complies with the Cyanide Code requirements and references the Audit Report's identification of opportunities for improvement. The Piteau review did identify some areas of concern which are discussed in the following sections.

2. Discussion Points

2.1. Containment System within the ADR Plant

There was a process solution release from the ADR plant on 22 June 2021 (Eagle Gold Project Spill Report, July 2, 2021). This was the third reported spill but the first related directly to the ADR plant. The Root Cause analysis presented in that report identified as the primary root cause *"a change in the routing of process solution, which enabled the introduction of warm caustic barren strip to the tail end of the south CIC train.*" This, in turn, contributed to the formation of precipitate which blinded the fine discharge screens and allowed process solution to overflow onto the ADR plant floor and, ultimately, exit the plant through the ADR southeast bay door (see Photo 1, below, which is an excerpt of Photo 2-1 of the referenced spill report). Figure 4-1, also from that spill report (reproduced below), shows the original and re-routed flows.

Photo 1: Southeast ADR bay door showing flow path from containment (enlarged from Photo 2-1 of the spill report)

Since moving pipes and clogged screens are common in ADR plants, this does not seem to address the actual root cause. The area where the spill occurred was within the ADR plant, but the containment was inadequate to hold this spill. This is in contrast with Section 4.1 of the Forte report (page 14) which states *"Any spillage within the ADR plant are contained within the process plant containment."* Since any part of an ADR plant can be exposed to process solution the primary root cause is the lack of adequate containment, which was missed in the audit.

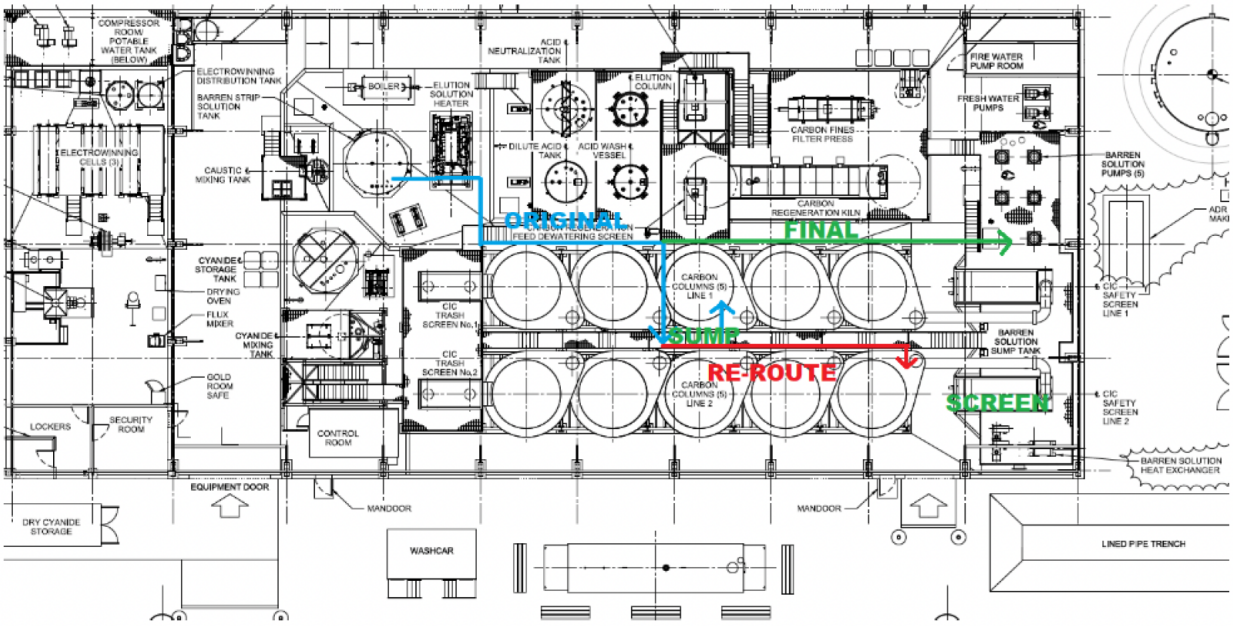

Figure 4-1: ADR Infrastructure Layout

Figure 4.2-1 of the CMP (reproduced below) shows the area of "cyanide containment" as essentially the entire ADR plant (the green outline) including the area of the spill. Section 5.7.5 states *"Process solution pipelines within the ADR area are all installed within concrete secondary containment. All barren solution risers and distribution lines will be placed within the lined footprint of the HLF, thus any potential leakage is captured within the pad, ultimately reporting to the In-Heap Pond. The pregnant and barren solution pipelines to the HLF riser arrangements and associated pumping stations that do not drain directly to the HLF impoundment will be placed in lined trenches, with any leakage, stormwater, or snowmelt accumulation in the liner system reporting to either the HLF impoundment."* Section 2.2 of the ADR Plant Operations Plan (ADR Plan) (StrataGold, March 2019) states *"Beyond concrete containment with the building, The ADR Plant itself rests on pad also designed for cyanide containment. The pad underneath the building is lined and graded such that overflow would be directed into a lined trench that flows back into the Heap Leach Facility (Figure 2.2-2)."* Figure 2.2-2 of the ADR Plan is also reproduced below.

Section 4.2 (Contributing Factors) of the spill report states *"Two main site factors have been identified that contributed to the subsequent release of process solution outside of ADR containment: 1) ADR containment design considers only overflows from defect or damage to the tankage within the ADR (as is common for secondary containment design), 2) pad and road*

grading allowed process solution to escape containment rather than flow to the heap pad." Item #1 accurately represents the as-built condition of the ADR plant but is inconsistent with the Forte report, the CMP, and the ADR Plan. Importantly, items 1 & 2 are not in compliance with Cyanide Code Standard of Practice 4.1, which states *"Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventative procedures."* That is, since the ADR plant can have process solution anywhere, the plant should include full secondary containment. Further, any potential escape routes from the in-plant containment should be directed towards external containment.

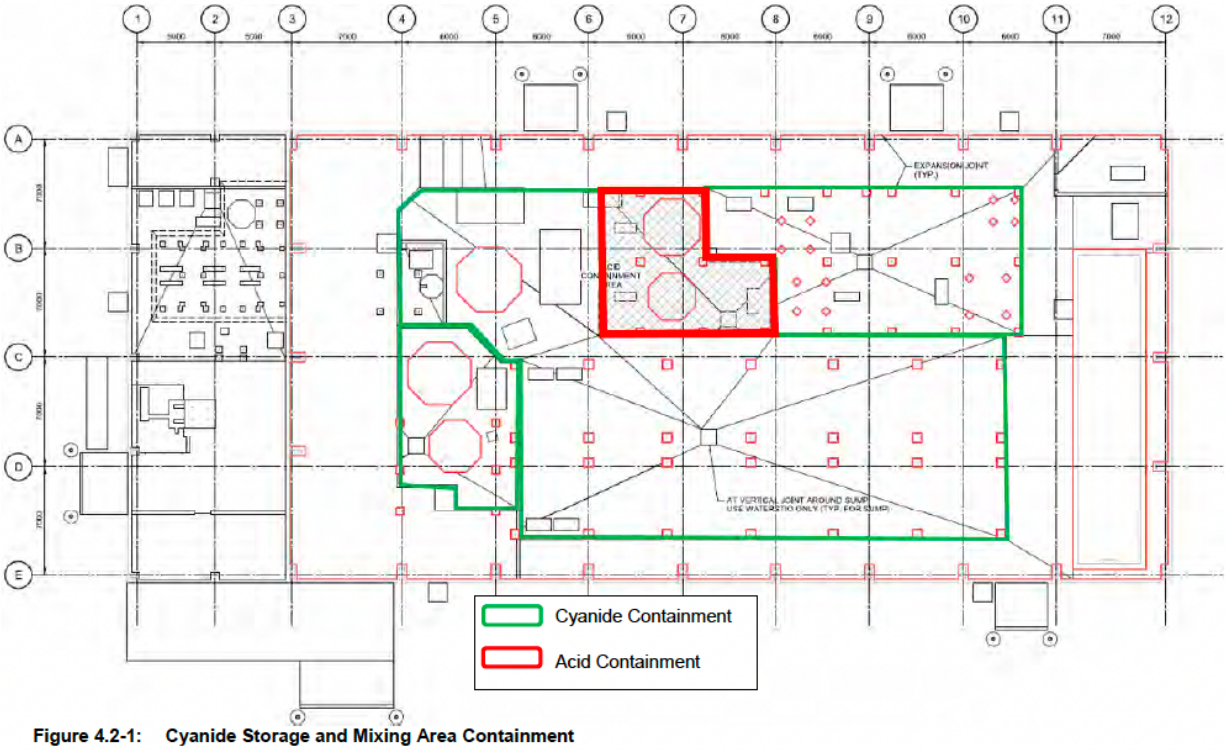

Figure 4.2-1: Cyanide Storage and Mixing Area Containment

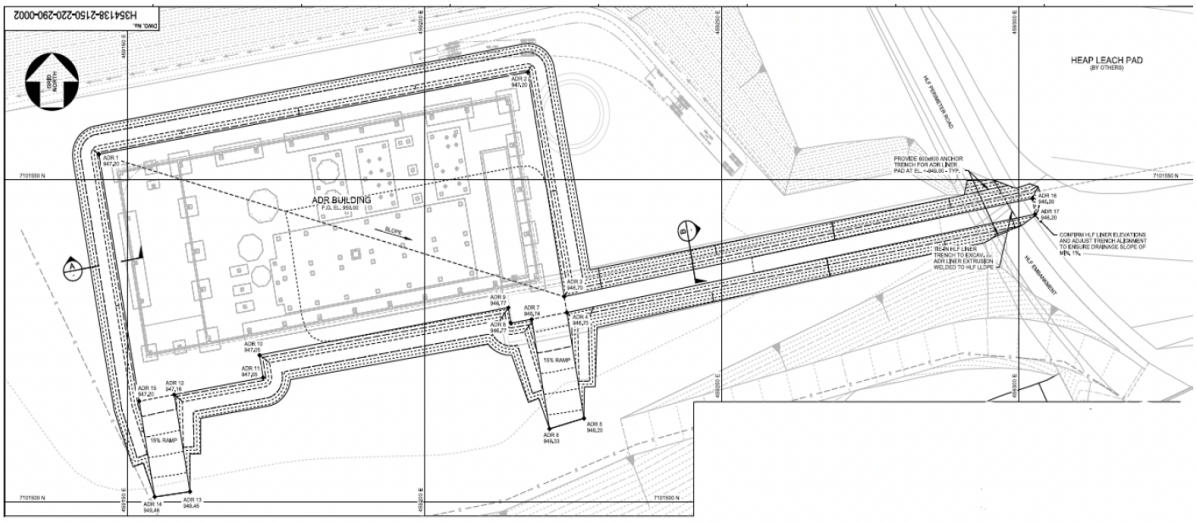

Figure 2.2-2: ADR Plant Secondary Containment

Recommendations:

2.1a: The ADR plant should be retrofitted to provide adequate containment as described in the CMP and the ADR Plan, or otherwise as intended by the Cyanide Code and best industry practices. This retrofitting should include measures adequate to ensure full containment. The retrofitting as envision in this recommendation should be relatively minor work. This should be completed in 2022.

2.1b: The CMP and ADR Plan should be updated to reflect current conditions.

2.1c: The next audit of the CMP should include a site visit, thorough reconciliation of as-built conditions with the design, applicable plans, and license requirements.

2.2. Process Solution Spills

Section 5.7 of the CMP addresses spill prevention and containment measures for process solution tanks and pipelines. In the approximately 12 months ending 30 July 2021 there were 4 reported spills at the site, including the spill at the ADR plant discussed in Section 2.1. Three of these occurred in under 4 months, between mid-March and late July 2021. These spills ranged from minor (70 L estimated volume) to relatively large (30,000 L). The immediate response to each of these was appropriate and effective, and indications are that there were no significant or lasting environmental impacts. The site personnel are to be commended for their quick, professional actions.

However, the frequency of spills and the potential to more effectively integrate lessons learned into operations, must be reflected upon. The frequency is high by industry standards, suggesting some other root cause in terms of management systems and, perhaps, internal inspections. It could be that since heap leaching is new in the Yukon there may not be the institutional knowledge (e.g., in other mining districts, like Nevada, there is an existing experienced work force) and this may simply be a learning curve for the Yukon mining industry. In which case the solution is timing and training. Regarding lessons learned, there have been some changes implemented in response to these spills, but it is not clear if these have been adequate. The ADR plant spill was addressed in detail in the prior section. The other three spills are addressed briefly below.

The spill of 30 July 2021 was caused by a leak in the gasket of a blind flange which sprayed beyond the edge of the HLP containment. Overspray is a very common source of spills in heap leaching. The site response was to add a deflector to stop any future spray from leaving containment, which is a common and appropriate response. Every mechanical connector in a process line poses this same risk. These include mechanical couplers, valves, and meters. Any such connectors located close enough to the edge of containment for spray should be retrofitted with shields or guards, and all new connectors should include them at the time of installation.

The spills of 21 July 2020 and 15 March 2021 have similar root causes. Specifically, process solution was able to flow out of the HLP containment via the granular material on top of the pad. This is perhaps the most common mechanism for spillage from heap leach pads and it is impractical to avoid having granular material connect the contained area with outside. But it is possible to prevent solution following these connections to exit containment. Robust training and internal inspections are required to achieve this, and part of the issue at Eagle Gold Mine may be that the site personnel had not developed an eye for risky scenarios.

Recommendations:

2.2a: All solution piping mechanical connectors located close to the edge of containment should be retrofitted with guards or shields to prevent spray from escaping. In this context, close means close enough that spray could cross the edge of containment. The retrofitting should be completed within 90 days and new connections should include shielding at the time of installation.

2.2b: All areas where granular material crosses over the edge of containment should be sloped so that the flow direction is into the contained area. Such crossings should only be allowed in areas where the underlying geomembrane liner also slopes into the containment area. Existing crossings should be retrofitted within 90 days and new crossings constructed with appropriate protection.

2.2c: Where there is any risk of solution flowing through or over granular layers beyond containment, the areas should be retrofitted in ways which effectively eliminate this risk in all seasons. Retrofitting should be completed within 6 months, and new installations should include appropriate barriers at the time of construction.

2.2d: Internal inspection protocols should include routine inspection of mechanical connectors to ensure they are safely located or shielded, and frequent inspection of every location where granular material crosses containment (excluding areas where there is no process solution), possibly every shift. These protocols should be implemented in 30 days.

2.2e: Spills of all nature are most common soon after commissioning major revisions or facility expansions. Special inspections and operator training should be implemented in advance of each expansion or significant change to operations and continued for about 12 months after commissioning.

2.3. Water Balance Model

The water balance model is the subject of a separate technical memo, but since water balance management is discussed in the CMP (Section 5.3), some specific related issues are pointed out here. This section includes a schematic of the model as Figure 5.3-1, reproduced below. However, there is an important connection missing: water from the Lower Dublin South Pond (LDSP) is periodically pumped to the Events Pond (EP) to avoid discharging non-compliant water from the LDSP. Surplus surface water thus accumulated in the EP is occasionally discharged from the process circuit without treatment (i.e. #14 of Fig. 5.3-1, but not to treatment). Neither of these flows are reflected in the water balance model and that has contributed to extended periods of infringement on the Desired Available Storage (DAS) in the Events Pond during 2020 and 2021. A minor issue is that the diagram identifies the flow from the ADR to the HLF (#19 of Fig. 5.3-1) as “PLS to HLF.” This is not usually PLS but rather barren solution.

The transfer of solution from the LDSP to the EP is contrary to the language of CMP Section 5.4.1 Prevention Measures for Open Ponds, which states *“The Events Pond will be maintained empty except to contain and temporarily store exceptional rainfall events or overflows from the in-heap pond.”* However, such exclusiveness in terms of use of EP is in the context of protecting wildlife, and so long as the EP has never been used to store process solution the risk to wildlife from these transfers should be minor.

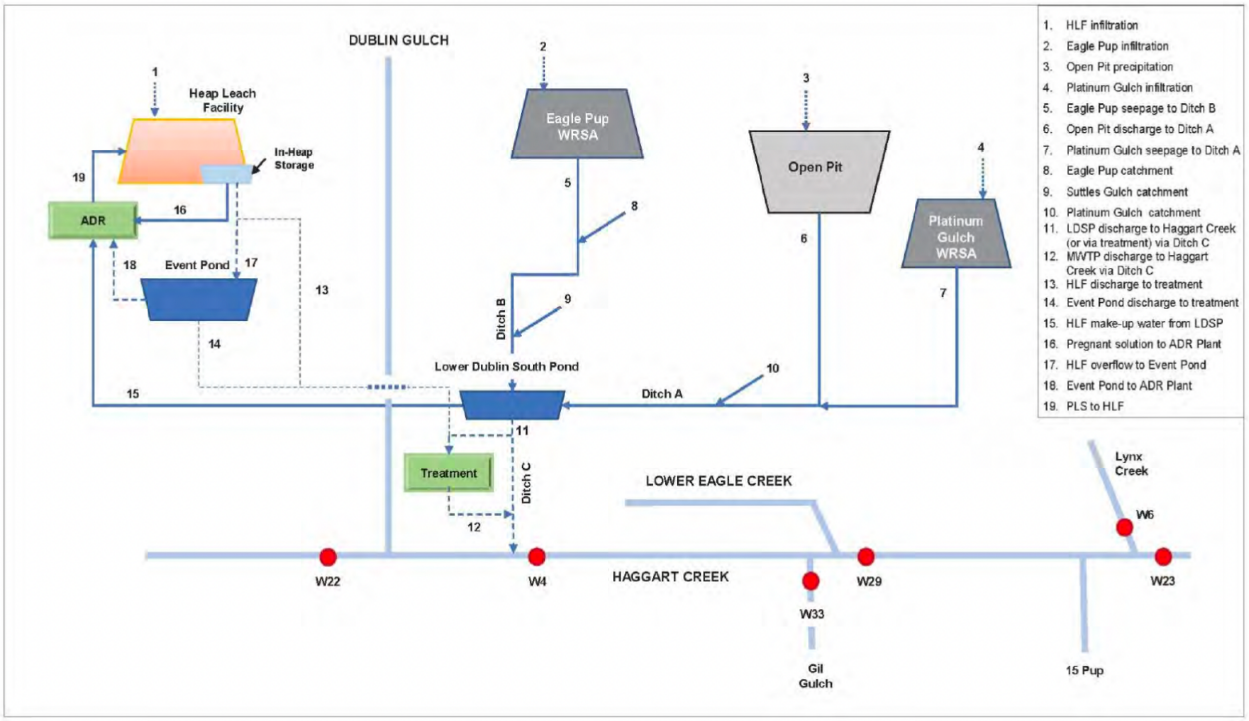

Figure 5.3-1: Site Water Balance Model

Recommendation:

2.3a: Update Sections 5.3 and 5.4 of the CMP, including Figure 5.3-1, to reflect the current water management system, including flows directed from the LDSP to the EP and discharges from the EP. This should occur with the next CMP update.

2.3b: Protocols should be developed for transfers of storm water to the EP to verify that there is no cyanide in the EP so that the intent of Section 5.4.1 is not violated. This should be revised in the next CMP and EMSAMP updates.

3.0 Summary of Recommendations

Table 3.1 presents a summary of the actions recommended herein, along with the suggested timing for their implementation.

Table 3.1: Summary of Recommended Actions

Topic & Section No.	Recommended Actions
ADR Plant Containment (2.1)	2.1a: The ADR plant should be retrofitted to provide adequate containment as described in the CMP and the ADR Plan, or otherwise as intended by the Cyanide Code and best industry practices. This retrofitting should include measyures to ensure full containment. The retrofitting as envision in this recommendation should be relatively minor work. This should be completed in 2022. 2.1b: The CMP and ADR Plan should be updated to reflect current conditions. 2.1c: The next audit of the CMP should include a site visit, thorough reconciliation of as-built conditions with the design, applicable plans, and license requirements.
Process Solution Spills (2.2)	2.2a: All solution piping mechanical connectors located close to the edge of containment should be retrofitted with guards or shields to prevent spray from escaping. In this context, close means close enough that spray could cross the edge of containment. The retrofitting should be completed within 90 days and new connections should include shielding at the time of installation. 2.2b: All areas where granular material crosses over the edge of containment should be sloped so that the flow direction is into the contained area. Such crossings should only be allowed in areas where the underlying geomembrane liner also slopes into the containment area. Existing crossings should be retrofitted within 90 days and new crossings constructed with appropriate protection. 2.2c: Where there is any risk of solution flowing through or over granular layers beyond containment, the areas should be retrofitted in ways which effectively eliminate this risk in all seasons. Retrofitting should be completed within 6 months, and new installations should include appropriate barriers at the time of construction. 2.2d: Inspection protocols should include routine inspection of mechanical connectors to ensure they are safely located or shielded, and frequent inspection of every location where granular material crosses containment (excluding areas where there is no process solution), possibly every shift. This should be implemented within 30 days. 2.2e: Spills of all nature are most common soon after commissioning major revisions or facility expansions. Special inspections and operator training should be implemented in advance of each expansion or significant change to operations. These special inspections should start before the completion of any major revisions or expansions and continue for 12 months after their completion.
Water Balance Management (2.3)	2.3a: Update Sections 5.3 and 5.4 of the CMP, including Figure 5.3-1, to reflect the current water management system, including flows directed from the LDSP to the EP and discharges from the EP. This should occur with the next CMP update. 2.3b: Protocols should be developed for transfers of storm water to the EP to verify that there is no cyanide in the EP so that the intent of Section 5.4.1 is not violated. This should be revised in the next CMP and EMSAMP updates.

Please let me know if you have any comments or questions on this.

Sincerely,

PITEAU ASSOCIATES USA LTD.

Mark E. Smith, P.Eng. (YT)
Chief Advisor, Geotechnical

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APPENDIX D

MEMORANDUM

To: Monica Nordling

Cc: Erin Dowd

Date: Final 30 July 2022

From: Mark E. Smith

Re: Heap Leach Facility Operation, Maintenance and Surveillance Manual (OMS), Jan. 2020 and supporting documents as referenced in the OMS; Victoria Gold Corp (VGC), Eagle Gold Mine

Monica,

This technical memo discusses the results of Piteau's review of the Heap Leach Facility Operation, Maintenance and Surveillance Manual (OMS), the related Water Use and Quartz Mining Licenses (WUL and QML) Clauses and supporting documents. The OMS is closely related to the Heap Leach Facility Contingency Water Management Plan (CWMP) and the Heap Leach and Process Facilities Emergency Response Plan (ERP); however, a separate technical memo addresses the review of those two plans and thus, there are only limited references herein. This memo was first issued as a draft in May 2022. This final version addresses comments from EMR and VGC.

1. Background

According to Clauses 98 and 99 of the Water Use License (WUL, QZ14-041-1), "All plans submitted pursuant to this License form part of the license once submitted" and "subject to any required assessments, authorizations or approvals, the Licensee must implement all plans that form part of this License," respectively. The OMS is required according to WUL Clause 103, and Clause 111 requires that "The Licensee must comply with the monitoring programs and studies in the EMSAMP and in the HLF OMS Manual." The OMS is also required by QML Schedule B.

2. Summary

The OMS is a solid plan with some very good detail. Some portions are light on specifics, and in a few places, it is incomplete, or has gaps between the OMS and both the CWMP and the ERP. The linkage between the OMS and the other two plans is unclear and the OMS lacks specific triggers for implementation of either the CWMP or ERP, even where such triggers are required by the WUL

(see for example WUL Clause 48). Clarified or improved linkages between the OMS and other plans are needed.

There are provisions of the OMS which are not being implemented, including (a) generally keeping the Events Pond dry and halting any transfers into the HLF when the DAS volume is not available (Table 6.3-1, Sections 7.9 and 9.2.2), and (b) using manual control of the LDRS pumps rather than level-activated pumps. Critically, there are some issues of non-compliance with the WUL requirements, including regular and extended encroachment into the Desired Available Storage (DAS).

Both the CWMP and ERP are the subjects of a separate technical memo and thus not addressed in detail herein.

3. Discussion Points – General

3.1 Heap Leach Facility (HLF) Overview (Section 4.3)
The end of the 2nd paragraph (page 8) states "The major design components of the HLF include….a downstream Events Pond to contain process make-up water…" The annual water balance model updates prepared by Forte for 2020 and 2021 do not include make-up water storage. The OMS also makes no mention of storing surface runoff from the Lower Dublin South Pond (LDSP) or any other locations. Importantly, WUL Clause 57 (and indirectly 103c) expressly prohibits water transfers to the HLF when the available storage in the HLF is less than or equal to the DAS. During the first three years of operation (including April and May 2022[1]) water was routinely transferred to the Events Ponds from the LDSP during periods when the total available storage was less than the DAS. Clause 48 of the WUL states "Whenever the Available Storage of the HLF is less than the Desired Available Storage, the Licensee must activate the HLF Contingency Water Management Plan and take actions from that plan to, within a period no greater than 30 days, return the Available Storage in the HLF to the Desired Available Storage or greater."

In each of the prior three years the available storage was not returned to the DAS within 30 days, suggesting that the site lacks adequate storage to meet the requirements of the WUL. In July 2022 VGC noted their exception to the above comment, stating: *"This statement does not consider the evolution of the regulatory approvals for the Mine and should be removed. The notion that a specific storage volume trigger must be maintained (and during that time water transfers could not be undertaken) was imposed during the issuance of the amendment to the WUL in August 2019. This represented a fundamental change to how site water management could be undertaken. The construction and commissioning of the MWTP this year will effectively mitigate this concern. Due to long range financial planning for large capital projects, there was limited ability to accelerate the construction of the MWTP to account for the licence [sic] condition."*

The last 2 paragraphs of Sec. 4.3 (middle of page 9) discuss integrity monitoring of the geomembrane liners, underdrains, and embankments and mentions a variety of monitoring stations and instruments (including monitoring vaults, survey monuments, inclinometers, and vibrating wire piezometers (VWP)). The OMS lacks maps showing the locations of these monitoring stations or instruments.

[1] Yukon Compliance Monitoring and Inspections letter to Mark Ayranto, VGC, "Re: Victoria Gold (Yukon) Corp contravention of the Waters Act," May 4, 2022.

Recommendations:

3.1a: The OMS and related documents (including the water balance model) should be revised to be more closely aligned with each other, including make-up water and surface run-off storage in the Events Pond and compliance with WUL Clauses 48 and 57.

3.1b: Design, construct, and commission the Emergency Pond in accordance with WUL Clause 84 by the fall of 2022. The pond should be lined and have a minimum capacity of 90,000 m^3, or as determined by a calibrated water balance model (Recommendation 3.1c) which should also consider the availability and capacity of the MWTP.

3.1c: Using an updated and calibrated water balance model as a guide, evaluate whether raincoats should be installed during 2022 to reduce the water entering the system in the spring of 2023. Repeat this annually before winter.

3.1d: Include a map or maps of the instrumentation and monitoring locations in the OMS.

3.2 Engineering Design Criteria (Section 6.3)

Table 6.3-1 (page 20), states under Events Pond "The purpose of the Events Pond…is to temporarily store excess inflows that cannot be stored in the In-Heap Pond…During initial heap operation…may also be used as temporary storage for make-up water. Otherwise, the Events Pond will be kept dry." This is inconsistent with current operating practices, as discussed in Sec. 3.1, above. The recommendation for this issue is already addressed in Section 3.1a of this memo.

The WUL Clause 12 states that the In-heap Pond and Events Pond spillways "must be sufficient to pass the peak discharge predicted during the passage of the Probable Maximum Flood through the HLF during the most critical phase of the HLF." Table 6.3-1 of the OMS states that both spillways are designed to pass the PMF peak flow with 0.5 m of freeboard. According to Section 5.7 of the report of the Heap Leach Facility Detailed Design prepared by BGC Engineering Inc. (Nov. 16, 2017), "The spillway was sized assuming Phase 1 of the pads are constructed, *and future phases are yet to be developed* [emphasis added]." Table 5-3 reports the calculated peak flows as 12.2 cubic meters per second (cms) from the HLF spillway and 3.8 cms from the Events Pond spillway. The spillway analysis for the In-heap Pond is included as Appendix B, but no analysis of the Events Pond spillway is provided. The design report[2] for the Phase 2 expansion does not address the spillway adequacy for the expanded heap leach pad (HLP) area. In addition, CDA (2013[3]) Section 5.4.6 asks "adequate ice management procedures in cold regions to ensure that the spillways are not blocked by ice when they are needed?" The OMS does not include ice management for either the In-heap Pond or Events Pond spillways.

This raises three important concerns:

- The BGC design report cites the probable maximum flood (PMF) as estimated from the "PMF rainfall event" according to Knight Piesold[4] (cited in BGC Section 5.5). However, according to the Knight Piesold report, this is the probable maximum precipitation, not the PMF. To calculate the PMF the combined flow from rainfall and snowpack must be considered;
- It is not clear that the "most critical phase of the HLF" has been identified, including future phases and the possible use of raincoats as directed by WUL Clause 14; and

[2] Forte Dynamics (2021). Detailed Design Report for Eagle HLF Phase 2," Issued for use 30 Aug.
[3] CDA (2013). "Dam safety guidelines 2007 (2013 Edition)," the Canadian Dam Association.
[4] Knight Piesold Ltd., (2013). Climate Baseline Data Summary, prepared for Vitoria Gold Corp, Eagle Gold Project, August 30. (Note that BGC cites this as Knight Piezold 2012)

- Whether routing of the 12.2 cms discharge from the In-heap Pond through the Events Pond reduces the peak flow from the Events Pond spillway to 3.8 cms under the critical phase Events Pond level. This item may require some investigation into the intent of the term "critical phase," including the initial state of the Events Pond at the beginning of the PMF. For example, in the first three years of operation the available capacity in the Events Ponds was significantly less than the total capacity for several months each spring/early summer, which would directly affect the peak flow from the spillway during a spring PMF.

Recommendations:

3.2a: Verify that the spillways for both the In-heap Pond and Events Pond meet the requirements of the WUL including the peak flows from future pad expansions and designing the spillway for the critical phase of the HLF. If not, implement the needed revisions or retrofits to ensure they do.

3.2b: Include ice management procedures to ensure that ice does not block the spillways of the In-heap Pond or Events Pond.

4. Discussion Points – Operations (Section 7)

4.1. Ore Stacking Plan (OMS Section 7.2)
This section states that ore will be stacked at "39,154 tonnes/day thereafter for 275 loading days, or more, per year." QML-0011 (Section 9.6) sets the maximum 12-month average stacking rate at 29,500 tonnes per day (tpd), which is consistent with the limit set by Clause 9.6 of QML-0011. At an actual stacking rate of 39,154 tpd the loading period is thus capped at 275 days. Further, one of the key inputs into the water balance model is ore stacking, since wetting fresh ore is one of the biggest water consumers. Thus, the water balance model and the OMS should use the same stacking periods and rates.

Recommendations:
4.1: Reconcile the water balance model updates with the stacking rate and period set forth in the OMS and the limitations of QML-0011 Section 9.6. Clarify the relationship between daily ore stacking rate and stacking days per year to be in compliance with QML-0011 Clause 9.6.

4.2. In-heap Pond (Section 7.3.3)
The 4th paragraph (page 23) states "The HLF CWMP includes specific triggers for implementing management strategies to address excess water in the HLF that could result in a potential release to the environment." For example, Table 7.3-1 of the OMS (which is identical to Table 4-1 of the CWMP) is entitled "Definitive Events Pond volume triggers" and is reproduced below. However, this table presents only a summary of the components of the DAS as required by WUL Clauses 103b and d rather than triggers. Importantly, triggers should be tied to specific actions to be taken in the event said trigger is reached. Further, MAC (2019[5] and 2021[6]) recommends that triggers and response actions be set to avoid undesirable events rather than only to respond to them once they have occurred. CDA (2019[7]) includes an example dam safety management system matrix for

[5] MAC (2019). "Developing an operation, maintenance and surveillance Manual for tailings and water management facilities." Mining Association of Canada, 2nd edition.
[6] MAC (2021). "A Guide to the Management of Tailings Facilities," Mining Association of Canada, version 3.2.
[7] CDA (2019). "Technical Bulletin, Application of CDA dam safety guidelines to mining dams," the Canadian Dam Association.

mining dams which includes “quantifiable performance objectives” (QPOs). Other than listing the WUL DAS volumes, this section is lacking QPOs for the In-heap Pond.

Section 3.1 of this memo discusses the history of the total available storage (including the Events Pond) falling short of the WUL-specified Desired Available Storage, and the periods of encroachment exceeding 30 days without definitive action to prevent this as required by WUL Clause 48, allowing the continued diversion of water into the Events Pond during such periods in contravention of Clause 57. One way which may help reduce such events would be to have clear and specific triggers and actions that start before the DAS is encroached upon and require increasingly aggressive measures, including implementing the CWMP, to avoid encroachment and, when encroachment does occur, quickly resolve it.

Table 7.3-1: Definitive Events Pond Volume Triggers

Phase	72-hour Draindown Volume (m^3)[1]	0.5 m Freeboard Volume (m^3)	24-hour 100-year Event Volume (m^3)[2]	Desired Available Storage Volume Required (m^3)	Allowable Percentage Full of Events Pond
1	Not considered as per QZ14-041-1			198,340	34%
2	149,040	19,600	42,000	210,640	30%
3	149,040	19,600	58,700	227,340	24%
4	149,040	19,600	58,700	227,340	24%
5	149,040	19,600	58,700	227,340	24%

Notes:

1 72-hour draindown has been calculated based on a draindown rate equal to the maximum leaching rate or 2,070 m^3/hr as mandated by the Yukon Water Board.

2 Event volume includes runoff from Events Pond Sub-catchment assuming no losses to infiltration (i.e., CN = 100), direct precipitation on the Events Pond, and event volume considered in HLF design for plan area of pad.

Recommendations:

4.2a: The term “trigger” should be more consistently and accurately used and be consistent with MAC guidelines.

4.2b: Add triggers linked to response actions within the OMS to clarify when the CWMP (and any other relevant plans or SOPs) should be implemented. These would include but may not be limited to providing the required available storage and implementing actions when this encroaches upon the DAS. This recommendation can be combined or implemented concurrently with Recommendation 6.1b. These triggers and response actions should also be consistent with the QPOs in CDA (2019), or QPOs should be addressed separately.

4.3. Operational Heap Leach Model (Section 7.9)

The 1st paragraph of this section states “An operational heap leach water balance model will be used to help manage solution storage and operation of the ADR and HLF. The model will be used to evaluate the HLF pad performance by tracking and predicting makeup water demands, and ensuring that an adequate volume of emergency pond storage (i.e., the phase dependent desired

available storage) remains available." This criterion does not seem to be fully implemented in practice. That is, the GoldSim model used for the annual water balance updates (Forte Dynamics) does not seem to be integrated with operations or with the OMS, and is not ensuring that the DAS is maintained, or that appropriate actions are taken when the DAS is not maintained. The following paragraph closes with "Water transfers into the HLF…are not permitted when the Desired Available Storage volume is not available in the Events Pond (as per Table 7.3-1)." This prohibition is consistent with the WUL but it is not being implemented, as discussed in the water balance technical memo. The lack of specific triggers and actions either in the OMS or the CWMP may be part of the root cause for this, but it goes beyond that and suggests that management changes are needed to avoid this continuing.

Recommendations:

These issues are addressed in the water balance technical memo as well as in Sections 3.1 and 4.2 of the current memo.

5. Discussion Points – Maintenance (Section 8)

5.1. Solution collection and delivery system pipeline leaks or breaks (Section 8.2.1)
For leaks or breaks which cause, or threaten to cause, process solution to leave containment areas, a leak in one component may provide early warning of future leaks in related components. There have also been two spills related to movement of granular material near or crossing the edge of containment.

Recommendations:

5.1a: The actions should further include analyzing the cause of the leak or break and making changes not just to the affected components but any other components which may pose similar risks. A good example of this would be the subject of the VGC spill report dated July 30, 2021 (leak at a blind flange) where the response should apply to any mechanical fitting near the edge of containment, since all mechanical fittings are vulnerable to the same type of leakage.

5.1b: The OMS should include specific procedures to ensure that granular material placed near the edge of the leach pad cannot leave containment nor allow cyanide solution to leave containment.

5.2. Earthquake Occurrence (Section 8.2.2)
Operators may have limited experience with earthquakes and the ground motion required to trigger special inspections.

Recommendations:

5.2: Provide specific criteria to trigger the Earthquake Occurrence inspections, such as that set forth in Table 5.2-1 of the ERP.

5.3. Flood Event (Section 8.2.3)
The response should also include consulting and, if appropriate, updating the water balance model as the impacts of a significant flood can take days or more to be fully realized, by which time it could be too late to take effective mitigation actions.

Recommendations:

5.3: Include updating the operational water balance model and implementing any measures indicated by the water balance model results in a timely manner.

5.4. Maintenance Schedule and Spare Parts (Section 8.3)
The OMS states, “A spare parts inventory will be maintained as recommended by equipment manufacturers and as required by the Owner.” More specificity would be helpful, either by giving some specific guidance or referencing the Standard Operating Procedures (SOPs) which contain such specifics. Further, any spares essential to the continued safe operations of the HLF, or implementation of contingency plans, should be included in the OMS. Examples include:

- Pregnant and barren solution pump and motor replacements or spare parts;
- Back-up power spare parts;
- Mine water treatment plant (MWTP) spare parts;
- Raincoats once Phase 2 is commissioned (to comply with WUL Clauses 14); and,
- Irrigation system components (to maintain or increase dynamic storage)

Recommendations:
5.4: Include in the OMS (or reference a separate SOP) with specific inventory requirements for critical parts and supplies including the materials to implement the WUL requirement for raincoats starting with Phase 2 (WUL Clause14).

6. Discussion Points – Surveillance and Response (Section 9)

6.1. General
The OMS lists under Section 10 References MAC 2011 & 2019, and MAC 2019 was updated by MAC 2021. Together MAC 2019 and 2021 recommend:

- Using best industry practices and risk-based critical controls crucial to preventing high-consequence failures or mitigating consequences should they occur. An example of a risk-based control would be specifying the frequency of surveying the monuments on the dam with monthly being the default, increasing to weekly when the pond level is above some higher-risk threshold as determined by the dam break analysis; and,
- Implementing QA/QC procedures to verify that maintenance is conducted as specified, such as setting required frequency and method of calibration and maintenance schedules for critical components of the facilities such as instrumentation.

Recommendations:
6.1a: Include the MAC 2019 and 2021 recommendations (as applicable) in the OMS, including the recommendations for Trigger Action Response Plans in Appendix 3 of MAC 2019.

6.1b: The triggers and response actions should be coupled with the existing dam break analysis (and updated when that analysis is updated) for things such as issuing warnings and evacuating the downstream areas (on- and off-site, as applicable) in the event of a risk of heap embankment failure. Evacuation routes should be well removed from expected inundation zones.

6.2. Heap Leach Facility Surveillance and Response (Section 9)
Table 9.1-1 lists the surveillance method, frequency, and responsibility. The listed “Embankment Geotechnical Instrumentation” includes only piezometers and a single inclinometer. Survey prisms are one of the most common and most effective means of monitoring slopes, including embankment dams, and can provide very early warning of problems. The table also sets the frequency of monitoring of these instruments as “Continuous using wireless relays to the office.” However, inclinometers (and generally prisms) require manual surveys and thus the frequency of the surveys should be specified. Further, during an extended power failure (such as the 72-hr failure scenario for the pumping system), the piezometer data cannot be transmitted by wireless relays either, unless there are back-up batteries in place.

There are also some items in Table 9.1-1 which are not clear. Specifically:

- For the solution collection and recovery systems, weekly surveillance is specified. However, for a valley fill heap leach facility the solution collection system is under the heap, reporting to the bottom of the In-heap Pond which is also filled with ore;
- Leak detection and recovery system (LDRS) monitoring ports require daily surveillance. The LDRS monitoring ports for the In-heap Pond are at the bottom of the pond, buried beneath ore, and located between two geomembrane liners. For the Events Pond, it is below the pond (which contains some water much of the time) and between two geomembrane liners. Thus, no visual inspection is possible. Flow to the LDRS is monitored with totalizing flowmeters, and fluid is removed by either level-actuated pumps (according to the OMS) or weekly by manually operating the pumps (according to the Annual Inspection reports);
- Instrumentation is surveilled monthly and per manufacturer's guidelines. Yet some instrumentation (e.g., piezometers) cannot be visually or otherwise inspected and only the data is applicable to verify their functionality, while other instrumentation has surveillance frequencies specified differently than monthly (the inclinometer is monitored quarterly, according to Section 9.2.4); and,
- The responsibilities as listed in Table 9.1-1, have the same type of measurements being taken by the different personnel. For example, piezometer data for the heap embankment and In-heap Pond are the responsibility of the Process General Foreman, while the heap leach pad piezometers are the responsibility of the Environmental Superintendent. The skills required to monitor, calibrate, and analyze such data, to maintain the equipment, and to quickly identify anomalous results, are complicated; there is value in having the same person performing these functions across areas.

Recommendations:

6.2a: Add a network of survey prisms (with routine surveying and analysis of the results) to the crest and downstream slopes of both the In-heap Pond and Events Pond embankments.

6.2b: Specify the frequency of manual surveillance for instruments such as inclinometers and survey prisms which cannot be automatically reported.

6.2c: Add procedures regarding the collection of data from critical instrumentation (such as piezometer) during extended power outages.

6.2d: Where practical and consistent with shift rotations, group types of instruments or monitoring measurements under the responsibility of the same person or group of people/department.

6.2e: Reconcile the language of Table 9.1-1 with the balance of the language of Section 9 and actual practice.

6.3. Instrumentation, Monitoring and Response (Section 9.2)

Tables 9.2-1 In-heap Pond Trigger Level Response and Section 9.2.2.1 Events Pond Water Level Response set forth the "Condition" (green, orange, red) based on the solution level in the pond and the potential response actions. This is a common and successfully used approach in mine site monitoring, but there are some areas for improvement noted in this review.

Table 9.2-1 lists a very broad “Orange” zone, ranging from elevations of 914 to 937 m (a vertical difference of 23 m) for the In-heap Pond, and then just 0.5 m for the “Red” zone. While the last 4 m of Orange includes increasingly significant actions, some of these should be moved to Red and the range of Red increased to provide operators with more time to avoid unintentional use of the spillway. Further, the actions are framed as suggestions (i.e. “Potential Response Actions”) but at some point in the Orange range the actions should be pre-determined and tied to outcomes. MAC 2019 Appendix 3 states “Pre-defined management actions are implemented.” Table A.1.1 of MAC Appendix 3 presents examples of pre-defined actions.

For Table 9.2-3 Events Pond Trigger Responses for Phase 1 of the HLF, the range of Orange is just 2.5 m of pond level rise, while the Red range is 6.5 m. Note that the levels in Table 9.2-3 do not match the trigger levels presented in bullet form immediately preceding Section 9.2.2.1 (page 42) in that the respective Red thresholds are 888 and 886.5 m.

Table 9.2-3 sets forth “Response” for each level rather than “Potential Response Actions” as set forth in Table 9.2-1. The difference is unclear, but ideally the two would be the same: a system of increasingly specific and mandatory actions as the alert level increases. Neither Table 9.2-1 nor 9.2-3 include triggers for available storage approaching or encroaching on the DAS, though this should also be included (and would be based on the combined available storage of the two ponds); this is an example of where the CDA (2019) QPOs might apply.

Recommendations:

6.3a: Re-evaluate the trigger levels (pond 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.

6.3b: Add trigger levels and actions related to encroachment on the DAS, with the first triggers before the DAS is encroached to allow operators to avoid that condition, and then actions when the DAS is encroached to bring it back into compliance within 30 days along with halting any solution transfers into the process system. These should be consistent with the triggers and actions set forth in the CWMP and ERP.

6.3c: Add triggers to implement the CWMP and ERP.

6.4. LDRS Levels (Section 9.2.3)

Two alert levels are defined for each of the two ponds (In-heap Pond and Events Pond), which are combined with four response levels. The two ponds have different operating conditions and as such these are discussed herein separately. The WUL sets the Alert Levels by reference to documents submitted by the Licensee. However, the Response Levels were set by VGC and as such those are the focus of this section.

For the In-heap Pond, a key operating condition is that the pond is buried under crushed stone and thus liner system repair can be impractical. In such cases it is common practice to allow higher leakage rates before taking extreme measures. In this context, Response Levels (RL) 1 and 2 appear appropriate. However, the leakage rates for RL 3 can be very high (up to 1,700,000 L/day for the In-heap Pond), which would suggest a failing liner system. Thus, the “Potential Response Actions” for Level 3 should be more aggressive and should require that the solution levels be held low enough so that the leakage rate returns to RL 2.

Unlike the In-heap Pond, the Events Pond is an open pond and the primary (top) liner can be easily repaired during the construction season. Thus, the response level limits should be lower than for

the In-Heap Pond. However, the OMS sets the maximum RL 2 flow only slightly lower than for the In-heap Pond and allows RL 3 flows of up to 1,900,000 L/day, 200,000 L/day higher than the In-heap Pond.

The reports issued by Forte (2021a[8], 2021b[9]) and BGC (2019[10]) state that both the In-heap Pond and Events Pond LDRS pumps are activated manually. Forte (2021a) states "As part of both the 2019 and 2020 EOR Annual Inspections [Ref 5 & 6] it was recommended to VGC that the In-Heap Pond LDRS sump be evacuated, as described in the OMS manual, by a level-actuated pump instead of the scheduled manual evacuation that is currently being performed." The latest Forte Annual Report[11] confirms that the two LDRS pumps are being manually activated and Piteau supports Forte's recommendations. Further, it is concerning that prior recommendations from the EOR went unheeded for at least 3 years. Such inspections and evaluations, especially when mandated by operating licenses, are clearly intended to identify - and timely remedy - deficiencies in the system.

The latest Annual Inspection report (Forte, 2022) also explains that the LDRS system in the Events Pond is not being monitored and that Forte had to infer certain parameters to estimate the flow rates into the LDRS. Specifically, Forte found that the pumped flow volumes and water level readings were not being recorded in accordance with the OMS and recommended that this be changed.

Recommendations:

6.4a: The In-heap Pond RL 3 responses should be more aggressive and include mandatory actions to reduce the leakage flow rates to RL 2 in a timely manner. RL 3 should also include an engineering assessment of the capacity of the LDRS system to ensure (with a high factor of safety) that the flow rates are not pressurizing the secondary (bottom) liner.

6.4b: The Events Pond RL flow limits should be significantly lower for all levels (RL 1 through RL 4), and the response actions for RL 3 should mandate repair of the liner during the next dry season after RL 3 was reported, along with reducing pond water levels to reduce leakage rates in the interim.

6.4c: Both ponds should have response actions which trigger implementation of the CWMP when RL 3 is first reached so that the pond levels can be lowered and thus the leakage rates are also lowered.

6.4d: Level-actuated pumps should be used for the LDRS sumps in both the In-heap Pond and the Events Pond and the flow and level data be recorded and reported.

6.4e: The recommendations resulting from annual inspections, performance reviews, and any other reports or studies required by the WUL or QML should be implemented in a timely manner. This includes implementing all recommendations of Forte (2021a, 2021b, 2022) and BGC (2019).

6.5. Movement (Section 9.2.4)

The embankment design includes 8 survey monuments located every 50 m along the crest and a single inclinometer. These monuments have not been installed. Further, the survey monuments,

[8] Forte (2021a). "Phase 1 performance review," technical memo issued by Forte Dynamics, May 20.
[9] Forte (2021b). "2020 annual inspection of Eagle Gold LF," Forte Dynamics, Inc., March 19.
[10] BGC (2019). "Eagle Gold project heap leach facility annual inspection," BGC Engineering, Inc., Nov. 19.
[11] Forte (2022). "2021 Annual Inspection of Eagle Gold HLF," Forte Dynamics, Inc., March 25.

as designed, are to be simple lengths of rebar embedded into the fill 0.8 m deep which are to be checked visually (per Table 9.2-1). This would provide some useful information but since the rebar pins don't penetrate the frost depth there will be considerable noise due to the daily freeze/thaw cycles in the spring and fall. Traditional survey monuments such as steel pins or caps set in concrete would provide better data and would be able to detect meaningful movement earlier and more reliably than visual inspection of the rebar.

There is one inclinometer in the embankment, which according to Section 9.2.4 is monitored quarterly. Table 9.1-1 states that the inclinometer is monitored continuously "by wireless relays to the office." Continuous monitoring is impractical, but quarterly monitoring is too infrequent. It's more common to have at least 2 inclinometers (on section) to better define any detected movement, and monthly monitoring is common under normal conditions. This may not be sufficiently frequent if there is other evidence of problems such as movement of the survey monuments or high piezometric levels.

Recommendations:

6.5a: As required by Forte (2022), at least 8 survey monuments should be installed along the embankment crest. These monuments should be anchored in concrete to reduce noise and detect movement more reliably.

6.5b: Install a 2nd inclinometer in the embankment and add this to the monitoring program with monthly or more frequent measurements and align the language of this section with Table 9.1-1.

6.5c: Alert levels and actions should be added to the monitoring of the survey monuments and inclinometers. The actions should include increasing the frequency of monitoring in the event there is evidence of movement or embankment distress.

6.6. Seepage and Underdrain Monitoring (Section 9.2.5)

This section describes the monitoring location and frequencies (Table 9.2-1) but does not establish trigger levels or actions. Table 9.2-1 could also be merged with Table 9.1-1 for easier reference.

Recommendation:

6.6: Add trigger levels and actions.

6.7. Event-Driven Inspections (Section 9.5)

There is limited definition of what constitutes an "Event" for the purposes of this section, which can lead to inconsistent implementation and results. Some events are well defined (e.g., power loss longer than 8 hours) but other events lack definition (e.g., large precipitation or slide of the stacked ore).

Recommendations:

6.7: Define all events that trigger Event-Driven Inspection, such as the perception of ground motion from an earthquake, the size or intensity of a large precipitation event, or the size or extent of a slide in the heap (since the lifts are stacked at the angle of repose, small, local slides are very common but generally do not require special inspections).

6.8. Comprehensive Dam Safety Review (Section 9.6)

This section sets a frequency of "no later than 5 years after construction and prior to decommissioning." The period soon after commissioning is a high-risk period for mine site dams, as is the period after each major facility expansion.

Recommendations:

6.8: Increase the frequency (i.e., reduce the time interval) of Dam Safety Reviews to less than 5 years after commissioning (ideally with the first occurring in 2022), and then again in the year following each leach pad expansion, and in the years following decommissioning unless the dams are breached and can no longer impound water.

6.9. Reporting (Section 9.8)

The subsection on Environmental Monitoring and Reporting discusses the reporting of pond volumes, SWE, average and total pumping, and other important hydraulic metrics. However, there is no discussion of incorporating this information into the operational water balance model.

WUL Clause 117 requires that certain data be collected and reported, and these requirements are addressed in this subsection. One of the requirements of Clause 117 is to report pumping rates and total monthly pumped volumes. According to Forte's Performance Review[12] "It should be noted that in October 2020 the totalizer [In-heap Pond LDRS] became non-operational and was replaced after winter in April 2021 *when conditions thawed*" [emphasis added], leaving a gap in the flow data of 5 months. While Clause 117 does not include LDRS pumping, this data gap illustrates the need for back-up measurements or replacements which are not season dependent.

Recommendations:

6.9a: Include routine updates to the GoldSim water balance model using the monthly data to allow better management of the ponds and reduce the frequency and severity of encroachments into the DAS. The modeling results should also be linked to trigger levels and actions. For example, if the March model update forecasts April or May encroachment into the DAS, there should be actions set forth to avoid this condition

6.9b: Where flowmeter data is required to be reported under the WUL or QML, or is otherwise critical to the safe operations of the HLF and to avoid extended data gaps, either redundant flowmeters should be installed or protocols put in place to ensure that quick repair or replacement occurs without regard to the season.

6.10 Back-up Power (Section 9.9.1)

Based on information provided by the site during this review, the back-up electrical generating capacity is greater than the power demand to keep solution circulating during and extended power disruption. CDA (2013) Section 5.4.6 lists backup equipment including alternative power supplies as needing definition in the OMS. However, this OMS does not specify the required power for such a condition nor the power produced by the generators and thus there is no clear guidance for prioritizing maintenance on the generators to ensure this capacity remains available at all times.

Recommendations:

6.10: Provide information on required back-up power and the generator capacity so that operators can verify that there is always sufficient back-up power available.

6.11 Pump Redundancy

The In-heap Pond includes a total of five pumps in what the OMS refers as "N+1+1 redundancy". Specifically, three pumps are normally operational, one pump is installed and in stand-by mode, and another is cycled through maintenance. This is a common approach to pump redundancy. However, the simultaneous failure of multiple pumps or motors can occur due to a power grid surge, lightning strikes, or failure of the voltage regulation system of the back-up generators. Another

[12] Forte (2021a). "Phase 1 performance review," technical memo issued by Forte Dynamics, May 20.

scenario is when additional dynamic storage is being used to manage solution accumulation, which requires the 4th pump to be operational. This leaves only the 5th pump, which may be in for maintenance, thus leaving no back-up or spare pump during the most critical periods for water management. The system should be able to safely operate under such conditions. This is commonly accomplished by either:

- Verifying that the available pond capacity is sufficient to safely store the accumulated solution during a partial pumping system failure (e.g., two pumps down for longer than 72 hrs); or,
- Maintaining full sets of replacement parts for each pump and motor required to operate the system.

According to the 3rd paragraph of this section there is no pumping redundancy for the Events Pond. Reliance on quick re-supply by vendors in case of a pump failure is risky, especially during an extreme storm event in the spring when local runways, roads, and river crossings may be unreliable. Note that the design extreme event lasts just 72 hrs (pumping system failure combined with the 100-yr/24-hr precipitation).

Recommendations:

6.11a: Evaluate the pump redundancy in terms of solution accumulation during an extended multi-pump failure and provide either adequate pond capacity or full replacement kits on site. Also evaluate the risk of a motor control center (MCC) failure and the need for a back-up MCC, spare parts, or another work around.

6.11b: The Events Pond pump should have a spare (either a complete pump and motor ready to install, or a complete repair kit for both the pump and motor).

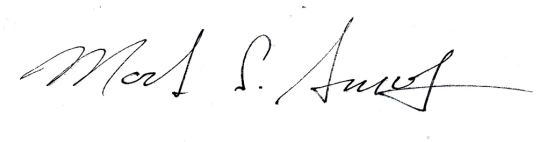
7.0 Summary of Recommendations

The attached Table 7.1 presents a summary of the actions recommended herein, along with the suggested timing for their implementation.

Please let me know if you have any comments or questions on this.

Sincerely,

PITEAU ASSOCIATES USA LTD.



Mark E. Smith, P.Eng. (YT)
Chief Advisor, Geotechnical

ATTACHEMENT 1

TABLE 7.1: SUMMARY OF RECOMMENDED ACTIONS

Topic & Section No.	Recommended Actions
Heap Leach Facility Overview (3.1)	3.1a: The OMS and related documents (including the water balance model) should be revised to be more closely aligned with each other, including make-up water and surface run-off storage in the Events Pond and compliance with WUL Clauses 48 and 57. 3.1b: The Emergency Pond should be designed, constructed, and commissioned by the fall of 2022. The pond should be lined and at have a minimum capacity of 90,000 m^3. 3.1c: Using an updated and calibrated water balance as a guide, evaluate whether raincoats should be installed during 2022 to reduce the water entering the system in the spring of 2023. Repeat this each year before winter. 3.1d: Include a map or maps of the instrumentation and monitoring locations in the OMS.
Engineering Design (3.2)	3.2a: Verify that the spillways for both the In-heap Pond and Events Pond meet the requirements of the WUL including the peak flows from future pad expansions and designing the spillway for the critical phase of the HLF. If not, implement the needed revisions or retrofits to ensure they do. 3.2b: Include ice management procedures to ensure that ice does not block the spillways of the In-heap Pond or Events Pond.
Ore Stacking Plan (4.1)	4.1: Reconcile the water balance model updates with the stacking rate and period set forth in the OMS and the limitations of QML-0011 Section 9.6. Clarify the relationship between daily ore stacking rate and stacking days per year to be in compliance with the QML-0011 Section 9.6.
In-heap Pond (4.2)	4.2a: The term “trigger” should be more consistently and accurately used and be consistent with MAC guidelines. 4.2b: Add triggers and actions within the OMS to clarify when the CWMP (and any other relevant plans or SOPs) should be implemented. These would include but may not be limited to providing the required available storage and implementing actions when this encroaches upon the DAS. This recommendation can be combined or implemented concurrently with Recommendation 6.1b. These triggers and response actions should also be consistent with the QPOs in CDA (2019), or QPOs should be addressed separately.
Solution Collection and Delivery System (5.1)	5.1a: The actions should further include analyzing the cause of the leak or break and making changes not just to the affected components but any other components which may pose similar risks. A good example of this would be the subject of the VGC spill report dated July 30, 2021 (leak at a blind flange) where the response should apply to any and all mechanical fitting near the edge of containment. 5.1b: The OMS should include specific procedures to ensure that granular material placed near the edge of the leach pad cannot leave containment nor allow cyanide solution to leave containment.
Earthquake Occurrence (5.2)	5.2 Provide specific criteria to trigger the Earthquake Occurrence inspections, such as that set forth in Table 5.2-1 of the ERP.
Flood Event (5.3)	5.3: Include updating the operational water balance model and implementing any measures indicated by the water balance model results in a timely manner.
Maintenance Schedule and Spare Parts (5.4)	5.4: Include in the OMS (or reference a separate SOP) with specific inventory requirements for critical parts and supplies including the materials to implement the WUL requirement for raincoats starting with Phase 2.

Topic & Section No.	Recommended Actions
Surveillance and Response, General (6.1)	6.1a: Include the MAC 2019 and 2021 recommendations (as applicable) in the OMS, including the recommendations for Trigger Action Response Plans in Appendix 3 of MAC 2019. 6.1b: The triggers and response actions should be coupled with the existing dam break analysis (and updated when that analysis is updated) for things such as issuing warnings and evacuating the downstream areas (on- and off-site, as applicable) in the event of a risk of heap embankment failure. Evacuation routes should be well removed from expected inundation zones.
Heap Leach Facility Surveillance and Response (6.2)	6.2a: Add a network of survey prisms (with routine surveying and analysis of the results) to the crest and downstream slopes of both the In-heap Pond and Events Pond embankments. 6.2b: Specify the frequency of surveillance for instruments such as inclinometers which cannot be automatically reported. 6.2c: Add a discussion about how critical instrumentation (such as piezometer) data will be retrieved during an extended power outage. 6.2d: Where practical and consistent with shift rotations, group types of instruments or monitoring measurements under the responsibility of the same person where practical. 6.2e: Reconcile the language of Table 9.1-1 with the balance of the language of Section 9 and actual practice.
Instrumentation, Monitoring and Response (6.3)	6.3a: Re-evaluate the trigger levels (pond 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. 6.3b: Add trigger levels and actions related to encroachment on the DAS, with the first triggers before the DAS is encroached to allow operators to avoid that condition, and then actions when the DAS is encroached to bring it back into compliance within 30 days along with halting any solution transfers into the process system. These should be consistent with the triggers and actions set forth in the CWMP and ERP. 6.3c: Add triggers to implement the CWMP.
LDRS Levels (6.4)	6.4a: The In-heap Pond RL 3 responses should be more aggressive and include mandatory actions to reduce the leakage flow rates to RL 2 in a timely manner. RL 3 should also include an engineering assessment of the capacity of the LDRS system to ensure (with a high factor of safety) that the flow rates are not pressurizing the secondary (bottom) liner. 6.4b: The Events Pond RL flow limits should be significantly lower for all levels (RL 1 through RL 4), and the response actions for RL 3 should mandate repair of the liner during the next dry season after RL 3 was reported, along with reducing pond water levels to reduce leakage rates in the interim. 6.4c: Both ponds should have response actions which trigger implementation of the CWMP when RL 3 is first reached so that the pond levels can be lowered and thus the leakage rates are also lowered. 6.4d: Level-actuated pumps should be used for the LDRS sumps in both the In-heap Pond and the Events Pond and the flow and level data be recorded and reported.

Topic & Section No.	Recommended Actions
	6.4e: The recommendations resulting from annual inspections, performance reviews, and any other reports or studies required by the WUL or QML should be implemented in a timely manner. This includes implementing all of the recommendations of Forte (2021a, 2021b, 2022) and BGC (2019).
Movement (6.5)	6.5a: As required by Forte (2022), at least 8 survey monuments should be installed along the embankment crest. These monuments should be anchored in concrete to reduce noise and detect movement more reliably. 6.5b: Install a second inclinometer in the embankment and add this to the monitoring program with monthly or more frequent monitoring and align the language of this section with Table 9.1-1. 6.5c: Alert levels and actions should be added to the monitoring of the survey monuments and inclinometers. The actions should include increasing the frequency of monitoring in the event there is evidence of movement or embankment distress.
Seepage and Underdrain Monitoring (6.6)	6.6: Add trigger levels and actions.
Event-Driven Inspections (6.7)	6.7: Define all events that trigger Event-Driven Inspection, such as the perception of ground motion from an earthquake, the size or intensity of a large precipitation event, or the size or extent of a slide in the heap (since the lifts are stacked at the angle of repose, small, local slides are very common but generally do not require special inspections).
Comprehensive Dam Safety Review (6.8)	6.8: Increase the frequency of Dam Safety Reviews to less than 5 years after commissioning (ideally with the first occurring in 2022), and then again in the year following each leach pad expansion, and in the years following decommissioning unless the dams are breached and can no longer impound water.
Reporting (6.9)	6.9a: Include routine updates to the GoldSim water balance model using the monthly data to allow better management of the ponds and reduce the frequency and severity of encroachments into the DAS. The modeling results should also be linked to trigger levels and actions. For example, if the March model update forecasts an April or May encroachment into the DAS, there should be actions set forth to avoid this condition 6.9b: Where flowmeter data is required to be reported under the WUL or QML or are otherwise critical to the safe operations of the HLF and to avoid extended data gaps, either redundant flowmeters should be installed, or protocols put in place to ensure that quick repair or replacement occurs without regard to the season.
Back-up Power (6.10)	6.10: Provide information on required back-up power and the generator capacity so that operators can verify that there is always sufficient back-up power available.
Pump Redundancy (6.11)	6.11a: Evaluate the pump redundancy in terms of solution accumulation during an extended multi-pump failure and provide either adequate pond capacity or full replacement kits on site. Also evaluate the risk of a motor control center (MCC) failure and the need for a back-up MCC, spare parts, or anther work around. 6.11b: The Events Pond pump should have a spare (either a complete pump and motor ready to install, or a complete repair kit for both the pump and motor).

PITEAU ASSOCIATES
GEOTECHNICAL AND
HYDROGEOLOGICAL CONSULTANTS

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APPENDIX E

MEMORANDUM

To: Monica Nordling

Cc: Erin Dowd

Date: FINAL 31 July 2022

From: Mark E. Smith

Re: Heap Leach Facility Contingency Water Management Plan, Jan. 2020
Heap Leach and Process Facilities Emergency Response Plan, May 2019,
and supporting documents; Victoria Gold Corp (VGC), Eagle Gold Mine

Monica,

This memo discusses the results of the Piteau review of the Heap Leach Facility Contingency Water Management Plan (CWMP), version 2020-01, the Heap Leach and Process Facilities Emergency Response Plan (ERP), version 2019-01, related Water Use and Quartz Mining Licenses (WUL and QML) clauses or conditions and supporting documents. This memo was first issued as draft in May 2022. This final version addresses comments from EMR and VGC.

1. Background

This technical memo should be taken together with the memo on the Heap Leach Facility Operation, Maintenance and Surveillance Manual, version 2020-01 (Appendix D) as there are important interactions between the three documents.

According to Clause 98 of the WUL (QZ14-041-1) “All plans submitted pursuant to this License form part of the license once submitted.” Clause 99 further reads “Subject to any required assessments, authorizations or approvals, the Licensee must implement all plans that form part of this License.” The CWMP is required according to WUL Clause 102. The ERP is required by QML Schedule B.

2. Summary

There is a close linkage between the Operations, Maintenance and Surveillance (OMS) and both the CWMP and ERP. In some cases, these linkages are explicit, in other cases they are inferred. The memo on the OMS discusses how this linkage could be clarified and strengthened by providing triggers when the CWMP and ERP are to be implemented. The current memo focuses on the CWMP and ERP rather than their linkages or integration with the OMS.

Overall, both plans form good frameworks and are consistent with the level of detail expected for early operations. The CWMP was last updated in January 2020, a few months following the project's commissioning. The ERP was last revised in early 2019, prior to the project's commissioning. Both plans lack some important as built and operational details, and during the first years of operation the site has likely adapted some of the early plans and procedures to accommodate conditions on the ground. In addition, during the 13 months ending July 2021 the site reported four cyanide-related spills and performed investigations into each. Further, the site has been the subject of actions by the Yukon Government related to non-compliance with the WUL requirements for Desirable Available Storage (DAS). Further, in the latest annual Heap Leach Facility (HLF) Inspection Report (Forte, 2022[1]) the Engineer of Record for the HLF listed six required and three recommended updates to the OMS.

This is compelling evidence that it is time to update the plans, addressing those issues as well as the areas discussed herein.

3. Discussion Points – CWMP

3.1. Contingency Water Management Strategies (Section 4)

Table 4-1 Definitive Events Pond Volume Triggers in CWMP summarizes the components used to determine the Desired Available Storage (DAS) by phase, along with an estimate of the percent of the total Events Pond capacity corresponding each DAS. The paragraph before and the title of the table represent these as "definitive triggers." However, these are not consistent with industry standards for triggers. Appendix 3 (MAC 2019[2]) *Trigger Action Response Plans* states "The critical controls and their trigger levels are based on the performance objectives and risk management plan…" A stated objective in the OMS is that "The Events Pond will ordinarily remain dry or occupied temporarily by direct precipitation and/or process makeup water. Any accumulation of water in the pond will be pumped into the process circuit….For the Process Manager to permit the accumulation of water in the Events Pond, the HLF solution condition must be green and under no circumstances can planned accumulation be above the [DAS]…"

MAC (2021[3]) recommends that operations apply industry best practices to manage risks. Best practices include applying triggers as early-warning tools which require actions designed to avoid the occurrence of undesirable events, and to reduce the consequences of such events should they occur. To accomplish these goals triggers must be set sufficiently before an undesirable event occurs (for example, before any encroachment into the DAS) to allow operators to avoid the event. In this case, such actions would likely include implementing water management strategies - such as increasing dynamic storage, increasing evaporation, and implementing snowpack management plans - to reduce or reverse the rate of rise in the ponds before the DAS is encroached upon. Subsequent triggers might address more significant actions designed, for example, to return the available storage to at least the DAS within 30 days as required by WUL Clause 48.

[1] Forte (2022). "2021 annual inspection report of Eagle Gold HLF," Forte Dynamics, Inc., March 25.
[2] MAC (2019). "Developing an operation, maintenance and surveillance Manual for tailings and water management facilities." Mining Association of Canada, 2nd edition.
[3] MAC (2021). "A Guide to the Management of Tailings Facilities," Mining Association of Canada, version 3.2.

WUL Clause 48 states "Whenever the Available Storage of the HLF is less than the Desired Available Storage, the Licensee must activate the HLF Contingency Water Management Plan and take actions from that plan to, within a period no greater than 30 days, return the Available Storage in the HLF to the Desired Available Storage or greater." Implicit in Clause 48 is the need for the CWMP to include specific triggers and response actions to first prevent encroachment and then to quickly eliminate the potential cause of encroachment.

Recommendations:

3.1: Implement triggers linked with response actions consistent with WUL Clause 48 and the recommendations of MAC (2019 & 2021). These triggers and actions should be aligned with and, where applicable, linked to those in both the OMS and ERP. Said triggers and actions, where applicable to the In-heap Pond, should also include measures to protect the embankment.

3.2. In-heap Dynamic Water Storage (Section 4.1)

Dynamic storage is a well-established method of managing heap leach solutions and reducing surplus accumulation in the ponds. The concept of increasing pumping rates by using back-up pumps is appropriate and consistent with industry practice. Eagle Gold operates with three pumps and a combined capacity of 1,500 m^3/hr under normal conditions, but has a 4th pump installed as a back-up, and a 5th pump on-site to allow one pump to cycle through maintenance (i.e., an N+1+1 system). However, the dynamic storage capacities cited in Table 4-2 for Phases 1, 2 and 3 are hypothetical rather than actual. The storage available for use at any given time will depend on the specific area available on the heap for additional irrigation as well as the actual depth of the ore in said area, the moisture content[4] of that ore relative to the in-leach moisture content, the presence of any snowpack or frozen zones, and perhaps other factors. Thus, while Table 4-2 is a reasonable conceptualization, it may mislead operators implementing the contingency plan and this could lead to non-conservative actions.

The 2nd paragraph after Table 4-2 states "…there is no single unplanned event…that is capable of overwhelming the total available dynamic storage." This is overly optimistic. Two plausible events come to mind: (1) any significant precipitation or freshet event occurring while much of the near-surface area of the heap is frozen (e.g., the area not under normal irrigation) and when the DAS is not fully available (such as has occurred in every spring since and including 2020) could produce surplus solutions in excess of the dynamic storage capacity; and (2) any extended full or partial pumping system failure would disallow use of available dynamic storage until full pumping capacity is resumed.

Regarding the use of the 5th pump to further increase dynamic storage, this is a reasonable contingency. However, if the dynamic storage in the heap is increased due to pumping rates significantly over 2,070 m^3/hr (the flow rate used to establish the DAS), there could be a shortfall in pond capacity if the design storm event occurs (100-yr/24-hr precipitation combined with a 72-hr pumping system failure). Specifically, the 72-hr heap draindown volume could increase to 180,000 m^3 with 5 pumps running at capacity.

[4] The moisture content would be influenced by factors such as how long since the area was last leached, the season (during freshet the ore will have higher moisture contents and thus lower dynamic storage capacity), the properties of the ore, and other factors.

Recommendations:

3.2a: The available dynamic storage capacity should be expressed relative to the key variables influencing it and provide operators a number of simple ways to conservatively estimate the capacity using available information.

3.2b: Increasing dynamic storage should also address the impacts on the heap draindown under a pumping system failure scenario when the 5th pump has been placed into service.

3.3. Snowpack Management (Section 4.2)

WUL Clause 102c requires the "development of a snow management trigger based on the snow water equivalent (SWE) of the snowpack as opposed to a snowpack depth." Implicit in this is the use of the actual SWE in setting trigger levels. Table 4-3 (page 12) provides a predicted SWE from a 24-hr rain-on-snow and 48-hr melt event. The paragraph preceding this table states "Upon the completion of each monthly snow course survey…verify the available volumes in the In-heap Pond and the Events Pond and if the values provided in Table 4-3 are not available within the system, the snowpack management….should be implemented." More specific criteria and triggers linked with actions would better achieve the intent of WUL 102c and be more aligned with the recommendations of MAC 2019 and 2021.

This section also discusses the method used to estimate the maximum snowpack melt rate (MOE, 1991[5]). The analysis was limited to the 48-hr snowmelt following a 24-hr rainfall. However, the system should be able to safely contain the spring freshet, not just a 72-hr event. Further, the MOE method is simplified. A better model is that used in the Eagle Gold annual water balance updates prepared by Forte Dynamics, called SNOW-17[6], or other constitutive models using heat transfer principals and site-specific inputs such as solar radiation and ambient temperatures.

Recommendations:

3.3a: Develop specific triggers and response actions to implement the intent of WUL 102c. These should include triggers to implement actions such as snow removal from the heap (and methods for appropriate disposal in accordance with WUL Clauses 89 and 90), and other methods to reduce freshet.

3.3b: Apply an appropriate constitutive model using site-specific data to estimate both peak and seasonal snowmelt volumes. Calibrate this model to verify its reliability and verify there is sufficient pond capacity available to safely store the solutions or implement other management methods such as raincoats to reduce freshet volumes to manageable levels.

3.4. Total Storage Volume Available to Manage Solution (Section 4.4)

This section cites the available storage volumes for the ponds and dynamic storage as follows:

[5] MOE (1991). "Manual of Operational Hydrology for British Columbia," British Columbia Ministry of Environment, Water Management Division, Hydrology Section, Feb.
[6] Anderson, E. (2006). "River forecast system: Snow accumulation and ablation model – SNOW-17," US National Weather.

Table 3.4-1

Storage Medium	Capacity, cubic meters
In-heap Pond	74,600
Events Pond	299,900
Dynamic Storage (2 additional pumps working)	437,600
Total Pond plus Dynamic Storage	812,100

However, these figures are based on assumptions or forecasts which may not be applicable at the time the storage is needed. Specifically:

- During each spring/early summer period of 2020 and 2021, as well as spring 2022, the Events Pond has routinely had available capacity less than 299,900 m^3. Spring is the critical time of year for maintaining storage capacity;
- The In-heap Pond capacity test has been completed but the results have not yet been reviewed, and the actual available capacity will depend on the solution level rather than the design assumptions; and,
- The dynamic storage available in the heap depends on the availability of the fifth pump to be brought on-line and other factors discussed in Section 3.2, above.

Recommendations:

3.4: A range of available volumes along with the key variables influencing them should be cited rather than fixed (and potentially optimistic) quantities for dynamic storage.

3.5. Water Treatment Plant (Section 4.5)

WUL Clause 103e requires that the CWMP reflects the "requirements for the minimum daily capacity of the MWTP to treat HLF Solutions as identified in this License." Section 4.5 does not cite the plant's capacity or the License requirements. Further, to meet any minimum daily treatment rate the site would need to maintain an inventory of reagents and other supplies (including repair or replacement parts) ensuring that an adequate minimum daily capacity was available. These are absent from the CWMP.

Recommendations:

3.5a: List the minimum daily capacity of the MWTP to treat HLF solutions as required by WUL Clause 103e.

3.5b: List the required inventory of reagents and supplies along with their quantities to operate the MWTP and provide an inspection and reporting schedule to verify that the inventories are maintained. Alternatively, maintain said list in the MWTP operating plan and reference that in the CWMP.

3.6. General

The CWMP lacks triggers to implement the ERP or to otherwise explain how the CWMP links to the ERP. Examples of such triggers might include scenarios when discharge from the Events Pond is imminent[7] or severe distress is noted in heap leach embankment which could be a precursor to a dam failure.

[7] For example, this might include a sliding scale of pond level and its rate of rise to predict the day and time of discharge, which could be coupled with the available capacity in the Events Pond.

Recommendations:

3.6: Provide triggers in the CWMP for implementing the ERP.

4. Discussion Points – ERP

4.1. General

The ERP was prepared by Strata Gold Corporation (SGC) before construction of the Eagle Gold project was completed. As such, there are various outdated citations such as references to SGC (whereas other documents and plans refer to Victoria Gold Corp (VGC)) and discussions of future constructions which are now in service. These warrant a revision to bring such references current.

Recommendations:

4.1 Update the plan to reflect current operating conditions and as built facilities.

4.2. MAC and CDA Recommendations

The Mining Association of Canada (MAC) has two guidance documents relevant to this ERP. Section 4 of MAC 2019 discusses "Linkages with the emergency response plan;" further, Section 5 of MAC 2021 (which updates MAC 2019), discusses emergency response and emergency preparedness plans. This guidance is generally applicable to the heap embankment and, perhaps to a lesser extent, the events pond.

The Canadian Dam Association (CDA) Dam Safety Guidelines[8] includes a detailed section (Section 4) on emergency preparedness, including requirements for the ERP and emergency preparedness plan. As an indication of the level of detail, the CDA Section 4 is 9 pages long, much of which is applicable to the heap embankment. The CDA Guidelines also discuss the importance of developing partnerships between the dam owner, key downstream stakeholders and response agencies (see, for example, Principal 3c in CDA Section 1.3). While Section 5.3 of the ERP addresses communication with stakeholders during an emergency, the intent of the CDA guidelines is for emergency communications to begin well in advance of any emergency. This ERP may be a good place to include the framework for such partnerships.

Recommendations:

4.2: Add additional detail to the ERP to bring it into alignment with MAC 2019, MAC 2021, CDA 2013, and CDA 2019.

4.3. Emergency Classification (Section 5.2)

Table 5.2-1 Emergency Level Determination presents a good framework, but some refinement may be valuable. Examples of such refinements include:

- Ore heap: Shallow slope failures on heaps are commonplace and most often would not rise to emergency status, even Tier 1. Some thresholds for the size or extent of the failure may be valuable.
- Earthquake: Tier 3 should include not just "uncontrolled release of PLS from the HLF" but any conditions suggesting incipient failure of the dam. This might include a sudden change in piezometer levels, misalignment or blockage of an inclinometer, or movement of the survey monuments (visually noted or identified by survey).
- This table excludes any events at the process plant (such as those listed in Section 6).

[8] CDA (2013). "Dam Safety Guidelines 2007 (2013 Edition)," Canadian Dam Association. Section 4 is also referenced by the CDA Application of Dam Safety Guidelines to Mining Dams, 2019.

Recommendations:

4.3: Add detail and specificity to the table as consistent with current operations, including the ADR plant.

4.4. Emergency Scenario Causes, Preventative Measures and Response (Section 6)

Some of the language in this section could be more specific or clarified, and thereby more effective. Examples for the HLF embankment are listed below, but the same concepts apply to the other listed incidents. These are illustrative examples only and the intent of this recommendation can be achieved in a variety of manners. It is important to find proper balance between sufficient detail to materially improve response actions without unnecessarily complicating the plan.

- HLF Embankment Failure
  - Potential Causes
    - Hydraulic.
      - Overtopping of the dam crest during runoff event due to spillway plugging. However, overtopping for any reason (such as flows greater than the spillway's design capacity) would pose the same threat and require similar action.
    - Seepage:
      - Internal erosion/progressive piping of fines is just one of several potential seepage-related failure modes.
  - Preventative Measures
    - Maintain heap water balance operational criteria.
      - This is a potentially critical control but requires significantly more definition to be effective.
    - Preventative maintenance.
      - Without reference to a schedule of maintenance or the components which require preventative maintenance this may be ineffective.
  - Site Response
    - These are not tied to the potential causes, which could lead operations personnel to implement inappropriate responses. For example, if the In-heap Pond spillway is blocked the best and immediate response would be to clear the spillway, if possible, not pump solution to the Events Pond.
  - Potential Effects
    - These also include significant downstream damage and risk to human lives.
  - Follow Up
    - Cease pad loading and new solution application
      - Pad loading may not affect the embankment depending on the failure mode.
      - Ceasing new solution applicable could exacerbate the problem if this leads to more solution accumulation by releasing dynamic storage.

Recommendations:

4.4: Add details and clarify as needed, and tie Preventative Measures, Site Response, Potential Effects, and Follow Up to specific causes.

4.5. Evacuation (Section 8)

The first paragraph states "A full evacuation can only be authorized by the Mine Manager." Section 4.1 states "…only the IC [incident commander] has the authority to order the evacuation of personnel from the Project site…" The ERP does not specify who has the authority to

authorize lesser evacuations, such as directing workers from the dam inundation zone (ERP Figure 8.1-1) to other areas of the site. Further, in the event of incipient failure of the heap embankment there may not be time to go through required channels and obtain the needed approvals, since once initiated dam failures can progress extremely rapidly.

Figure 8.1-1 shows the predicted inundation zone from a failure of the heap embankment and a single evacuation route, which generally parallels the inundation zone. The inundation zone continues off the right-hand edge of this map and shows the evacuation route crossing the inundation zone. Further, evacuating parallel to and near the inundation route is dangerous, especially considering that there are quicker and more reliable routes to high ground, and the optimum route which may be dependent on where workers are located.

Recommendations:

4.5a: Clearly identify authority and trigger events to order evacuation and make it clear that rapid evacuation is essential when there is a potential embankment failure.

4.5b: Update Figure 8.1-1 to reflect as built conditions and revise the evacuation routes to provide quicker access to high ground and to keep evacuation routes away from the inundation zone. Different routes may be needed for different locations.

4.5c: Expand Figure 8.1-1 or provide a second figure to show the entire extent of the inundation zone.

5.0 Summary of Recommendations

Tables 5.1a and 5.1b present a summary of the actions recommended herein, along with the suggested timing for their implementation.

Table 5.1a: Summary of Recommended Actions, CWMP

Topic & Section No.	Recommended Actions
Contingency Water Management (3.1)	3.1: Implement triggers linked with response actions consistent with WUL Clause 48 and the recommendations of MAC (2019 & 2021). These triggers and actions should be aligned with and, where applicable, linked to those in both the OMS and ERP. Said triggers and actions, where applicable to the In-heap Pond, should also include measures to protect the embankment.
In-heap Dynamic Storage (3.2)	3.2a: The dynamic storage capacity should be expressed relative to the key variables influencing it and provide operators a number of simple ways to conservatively estimate the capacity using available information. 3.2b: Increasing dynamic storage should also address the impacts on the heap draindown under a pumping system failure scenario when the 5th pump has been placed into service.
Snowpack Management (3.3)	3.3a: Develop specific triggers and response actions to implement the intent of WUL 102c. These should include triggers to implement actions such as snow removal from the heap (and methods for appropriate disposal in accordance with WUL Clauses 89 and 90), and other methods to reduce freshet. 3.3b: Apply an appropriate constitutive model using site-specific data to estimate both peak and seasonal snowmelt volumes. Calibrate this model to verify its reliability and verify there is sufficient pond capacity available to safely store the solutions or implement other management methods such as raincoats to reduce freshet volumes to manageable levels.
Total Storage Vol. Available (3.4)	3.4: A range of available volumes along with key variables influencing them should be cited rather than fixed (and potentially optimistic) quantities for dynamic storage.
Water Treatment Plant (3.5)	3.5a: List the minimum daily capacity of the MWTP to treat HLF solutions as required by WUL Clause 103e. 3.5b: List the required inventory of reagents and supplies along with their quantities to operate the MWTP and provide an inspection and reporting schedule to verify the inventories are maintained. Alternatively, maintain said list in the MWTP operating plan and reference that in the CWMP.
General (3.6)	3.6: Provide triggers for implementing the ERP in the CWMP.

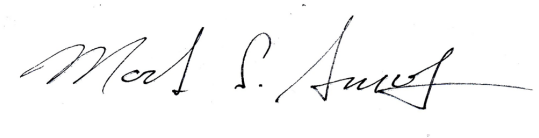
Table 5.1b: Summary of Recommended Actions, ERP

Topic & Section No.	Recommended Actions
General (4.1)	4.1: Update the plan to reflect current operating conditions and as built facilities.
MAC and CDA Recommendations (4.2)	4.2: Add additional detail to the ERP to bring it into alignment with MAC 2019, MAC 2021, CDA 2013, and CDA 2019.
Emergency Classification (4.3)	4.3: Add detail and specificity to the table as consistent with current operations, including the ADR plant.
Emergency Scenarios, Causes, Prevention (4.4)	4.4: Add details and clarify as needed. Tie Preventative Measures, Site Response, Potential Effects, and Follow Up to specific causes.
Evacuation (4.5)	4.5a: Clearly identify authority and trigger events to order evacuation and make it clear that rapid evacuation is essential when there is a potential embankment failure. 4.5b: Update Figure 8.1-1 to reflect as built conditions and revise the evacuation routes to provide quicker access to high ground and to keep evacuation routes away from the inundation zone. Different routes may be needed for different locations. 4.5c: Expand Figure 8.1-1 or provide a second figure to show the entire extend of the inundation zone.

Please let me know if you have any comments or questions on this.

Sincerely,

PITEAU ASSOCIATES USA LTD.



Mark E. Smith, P.Eng. (YT)
Chief Advisor, Geotechnical

From: Todd.Powell
To: Monica.Nordling
Cc: Erin.Dowd
Subject: RE: Eagle Gold deadlines
Date: May 29, 2023 4:58:51 PM
Attachments: image002.png
image003.png

Thanks, Monica,

Good to know they are in arrears on some items. Let's discuss possible course of action to ensuring we receive these in a timely way.

Todd Powell
Director
Energy, Mines, Resources| Mineral Resources Branch
T 867-667-3126 | Yukon ca

From: Monica.Nordling <Monica.Nordling@yukon ca>
Sent: Monday, May 29, 2023 3:35 PM
To: Todd.Powell <Todd.Powell@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: Eagle Gold deadlines

Hi Todd,
I've put together a bit of a summary of all the things we've been waiting on from VGC. There are quite a few pieces, some of which have come through, but others that continue to be pushed back and have yet to be submitted. I have highlighted late submission in red.

MWTP requirements

- Letter sent from MRB on January 16, 2023 outlining requirements
- As-builts (due 60 days after construction) – RECEIVED
- Commissioning Report – RECEIVED
- MWTP OMS submitted with as-builts – NOT Received – VGC plans to append it to updated Water Management Plan
- Updated Water Management Plan due March 2023 – NOT received
- Updated EMSAMP due March 2023 – NOT received

HLF-CN management review

- MRB issued letter on January 30, 2023 outline implementation requirements
- VGC produced implementation plan due February 28, 2023 – NOT received

Cyanide Management Plan

- Review comments sent to VGC December 7, 2022 requiring updated version due January 30, 2023
  - Incorporated comments from NND and Mark Smith HLF-CN review
- VGC states that it is being held up to include requirements from WCB – MRB agrees that these need to be included but considers it to be a fairly simple editorial change and SOP development

Waste Rock and Overburden Facility Management Plan

- VGC provided updated version as requested by MRB, due January 31, 2023
- Upon review of updated version, MRB notified VGC that EOR sign-off was required for the deviations from the design report on the PG WRSA (added lifts, increased tonnage, foundation prep changes) – no due date was given to VGC, but it has been promised multiple times and never submitted.

I think this covers it all, unless Erin comes up with something I've missed. Please let me know if you have any questions.

Monica Nordling (she/her)
Mining Technologist
Energy, Mines and Resources | Major Mines
T: 867-667-5604 | Yukon.ca

From: Todd.Powell
To: Erin.Dowd
Cc: Monica.Nordling
Subject: RE: [EXT] RE: QML-0011 - outstanding requirements
Date: June 15, 2023 10:02:00 AM
Attachments: image002.png
image003.png

In a word – no… I'm not aware of the request (would be to YEC), or any planned action. We should likely look into what action may be underway on this, just so we can speak to it if needed (mostly to steer inquiry that way).

Todd Powell
Director
Energy, Mines, Resources| Mineral Resources Branch
T 867-667-3126 | Yukon ca

From: Erin.Dowd
Sent: Thursday, June 15, 2023 10:00 AM
To: Todd.Powell
Cc: Monica.Nordling
Subject: FW: [EXT] RE: QML-0011 - outstanding requirements

One item from Hugh's response below – I am not aware of this request, and I don't think it's in our wheelhouse but do we know who this request went to and if there is a planned response?

- With respect to activities undertaken to reduce GHG emissions, our senior management did request that Yukon Government support an increase to the power that we can draw from the Yukon Energy Corporation grid but I understand there has not been an official response to that request. Without an ability to access more grid power our options are somewhat limited. We have worked with a third party to look at options for renewables (solar) and that work is ongoing. In 2022 we did also complete connection of the truck shop to the rest of our grid infrastructure which allowed greater use of YEC grid power rather than diesel powered generation. These activities would ultimately support overall territorial efforts to reduce emissions.

Erin Dowd
Major Mines Licensing
867-667-3432

From: Hugh Coyle <hcoyle@vgcx com>
Sent: Wednesday, June 14, 2023 1:26 PM
To: Monica.Nordling <Monica.Nordling@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>; Todd.Powell <Todd.Powell@yukon.ca>
Subject: [EXT] RE: QML-0011 - outstanding requirements

Hi Monica,
Thank you for your patience with these items.
Our team has been managing through the last of the 2023 freshet related tasks which has also involved a significant amount of additional reporting that resulted in reprioritizing certain tasks.
See below in red.
Regards,
Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Monica.Nordling <Monica.Nordling@yukon ca>
Sent: Tuesday, June 13, 2023 3:33 PM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>; Todd.Powell <Todd.Powell@yukon.ca>
Subject: QML-0011 - outstanding requirements

Good afternoon Hugh,
I wanted to touch base on several outstanding items that have not yet been submitted to us, although due dates and indicated submissions timelines have come and gone. I have tried to provide additional context to accurately represent subsequent discussions and welcome any additional context you may have.
MWTP requirements

- Letter sent from MRB on January 16, 2023 outlining requirements
- As-builts (due 60 days after construction) – RECEIVED
- Commissioning Report – RECEIVED
- MWTP OMS submitted with as-builts – NOT Received See attached. Process department prioritized and completed their final review yesterday.
- Updated Water Management Plan due March 2023 – NOT received In hindsight, submission of the plan (and all water related plans) prior to actual operating experience throughout freshet would have likely resulted in a plan that was misaligned with our strategy. Operation of the MWTP through a freshet has provided us with a number of additional considerations that will feed into this. We have engaged consultant support with some of the more technical aspects of the plan update. Additionally, FNNND have requested involvement in finalization of this plan – will need to confirm timeline and get back to you.
- Updated EMSAMP due March 2023 – NOT received Site team had been assisting but MWTP sampling and subsequent reporting requirements overwhelmed that capacity. Currently intend to cease treatment and the end of the month for at least a month which will free up our team to complete the update on this. Will target end of July for submission.

HLF-CN management review

- MRB issued letter on January 30, 2023 outlining implementation requirements

- VGC to produce an implementation plan due February 28, 2023 – NOT received. Engaged external support in completion of the plan to overcome current internal capacity constraints. Expect completion by end of July.

Cyanide Management Plan

- Review comments sent to VGC December 7, 2022 requiring updated version, due January 30, 2023 – NOT received
- VGC indicated that the updated version is being held up to include requirements from WCB – MRB agrees that these need to be included but considers it a straightforward update (see email from Monica Nordling dated May 1). Plan finalization will be informed by the Implementation Plan, Piteau Associate Memorandums, Patterson and Cooke audit, the specific Yukon Government comments received on December 7, 2022, the FNNND comments dated August 16, 2022. If there were any further comments stemming from the meeting held on October 31, 2022 (or if I am missing one of the source comment documents that we are being required to consider please let me know). As with the WMP discussion above, the MWTP operation has provided invaluable data to support the plan update. Expected completion by end of August.

Waste Rock and Overburden Facility Management Plan

- VGC provided updated version as requested by MRB, due January 31, 2023
- Upon review of updated version, MRB notified VGC that EOR sign-off was required for the deviations from the design report on the PG WRSA (added lifts, increased tonnage, foundation prep changes) – no due date was given to VGC, although its submission has been indicated to be forthcoming multiple times. Draft memo received by EoR on May 6, 2023. Gaps identified and returned to EoR on June 1, Follow up meeting to finalize held June 13. EoR stated final will be issued to me by June 21.

Annual Report

- MRB issued new emissions reporting requirements via email on June 13, 2022
- Reporting was to be submitted along with the 2022 Annual Report for the period of July 1 to December 31, 2022 – NOT received. Oversight on my part but see attached – all uses are development/production related.
- For 2023 reporting, we will attempt to follow your requested format as closely as possible but, as discussed, the request is significantly different to how data is captured and reported under various federal requirements and for our ESG report (which uses SASB guidance).
- For transportation calculations, and in light of the difficulty we will have providing this information, I have included in the attached our vehicle counts that were provided in the annual report. The majority of fuel consumption stated is for mobile equipment but a portion would be utilized for maintenance activities on the site access road by our mobile equipment as half of the public road is maintained by VGC (including snow clearing along the entire road) and not Yukon Government. This maintenance equipment may be captured in our access road trips but perhaps it could be used by Yukon Government to project the information that you are seeking.
- In addition to those trips, we have 4 round trip charter flights from Whitehorse to Mayo every week for our crew change with Air North (since their commercial run ceased due to COVID).
- I will need some time to map out the disturbance areas for land clearing. I must admit that I cannot think of any calculation or statistical method that could be used to meet the objective stated (that it would "strengthen our understanding of the role of the natural environment in carbon sequestration and the impact that land use change has on carbon emissions"). We will provide the data when time permits though.
- With respect to activities undertaken to reduce GHG emissions, our senior management did request that Yukon Government support an increase to the power that we can draw from the Yukon Energy Corporation grid but I understand there has not been an official response to that request. Without an ability to access more grid power our options are somewhat limited. We have worked with a third party to look at options for renewables (solar) and that work is ongoing. In 2022 we did also complete connection of the truck shop to the rest of our grid infrastructure which allowed greater use of YEC grid power rather than diesel powered generation. These activities would ultimately support overall territorial efforts to reduce emissions.
- Projection for the operational period of the mine will be fairly similar to the values in the attached if there is no substantive allowable increase in our use of YEC power.
- We have not accessed any incentive programs.

Thank you for taking the time to consider the outstanding items and their respective due dates.

Yukon

Monica Nordling (she/her)
Mining Technologist
Energy, Mines and Resources | Major Mines
T: 867-667-5604 | Yukon.ca

From: Jeremy.Karkanis
To: John.Minder
Subject: FW: [EXT] RE: Submission Updates
Date: November 21, 2023 12:35:00 PM
Attachments: image001.png
20231120 Implementation Plan.pdf

Hi John,

For awareness, please see the attached Implementation Plan and submittal timeline from VGC for Eagle Gold Mine.

Thanks,

Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Monday, November 20, 2023 7:19 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: [EXT] RE: Submission Updates

Hi Jeremy,

Sorry for the delay in getting back to you. November started off with a request to start the next year budget season early this year and it turns out that buying all of the Yukon assets from another company made the old copy and paste routine a bit difficult. My budget wish list is complete so now I see if Santa (or maybe the Victoria Gold Board) thinks I have been good. Hope all is well up there.

The attached document is the Implementation Plan which includes details on the planned submission schedule for the related plans and materials.

If you have any questions, comments or concerns, just let me know.

Cheers,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Tuesday, November 7, 2023 11:06 AM

To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: Submission Updates

Hello Hugh,

Hope your November has started well!

Just reaching out to check in on the status for a few of VGC's outstanding plan revision submissions. Would you be able to provide updates for the following items? Looking for planned submission dates if available:

1. Cyanide Management Plan
2. Water Management Plan
3. Environmental Monitoring and Surveillance & Adaptive Management Plan
4. Implementation Plan

Thanks, and let us know if you have any questions.

Regards,

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

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MEMO

Date	November 20, 2023
To	Jeremy Karkanis - Mining Technologist Erin Dowd, Manager – Major Mine Licensing
From	Hugh Coyle, VP Environment
Subject	Implementation Plan - Response to HLF Operations and Cyanide Management Desktop Review

This memorandum provides our response to the January 30, 2023 letter request to provide an Implementation Plan (IP) to address the Implementation Expectations detailed in that letter. Additionally, this IP includes our responses to a December 7, 2022, follow-up email from Yukon Government regarding a review of the June 2022 Cyanide Management Plan version 2022-01, and our responses to Bill Slater's August 2022 memo regarding his review of the CMP on behalf of the First Nation Nacho Nyak Dun.

Table 1 below provides a submittal timeline for various plans that include the: Cyanide Management Plan (CMP); Operations, Maintenance and Surveillance Plan (OMS); Water Management Plan (WMP); Contingency Water Management Plan (CWMP); Heap Leach Facility Emergency Response Plan (ERP) and the Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP). This IP also considers the updates to water balance approaches for the HLF and site management.

Detailed responses to YG and NND comments, implementation plan tasks and submittal timelines are provided in Table 2.

TABLE 1. IMPLEMENTATION PLAN SUBMITTAL TIMELINE

Plan	Submittal Timeline
Heap Leach Water Balance Model (HLF WBM)	Part of Annual Report Submission – every March 31
Site Water Balance and Water Quality Model (SWBWQM)	Part of Annual Report Submission – every March 31
Development of a Calibrated, Operational Water Balance Model using the SIMPS file	Daily/Weekly Updating, Monthly Reporting Seasonal Reporting – mid-summer (August 1 each year) and late fall (November 1 each year - by December 31, for this calendar year)
Water Management Plan (WMP)	December 31, 2023
Contingency Water Management Plan (CWMP)	Q1 2024
Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP)	Q1 2024

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MEMO

Plan	Submittal Timeline
Mine Water Treatment Plant Operating Plan (WTP-OP)	Submitted June 2023
Cyanide Management Plan (CMP)	Q1 2024
HLF Emergency Response Plan (ERP)	Q1 2024

TABLE 2. IMPLEMENTATION PLAN RESPONSE AND TIMELINE

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
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	This was corrected in the 2022 Annual Water Balance Modeling Report prepared by Forte Dynamics and dated April 22, 2022 (submitted as Appendix F to the Annual Report for 2021).	The corrected DAS volumes will appear in each annual update of the HLF WBM report and the updated HLF CWMP (scheduled for submittal by Q1 2024).
	ii. all material inputs and outputs (including LDSP transfers)	For the purposes of water balance modelling for the 2022 Annual Report and moving forward to more accurately represent actual site water management practices, the scopes of SWBWQM and the HLFWBM have been adjusted. The primary change is that now the EP is primarily modelled within the SWBWQM (with input from the HLFWBM) so that transfers into and out of the LDSP and EP from other contact water sources are now appropriately represented. The SWBWQM considers the stored volumes (and available storage) within the EP and calculates the DAS (based on the available capacity within the IHP and EP). The Solution Inventory Monitoring Programs (SIMPs) excel-based model has been and will continue to be the primary method for daily tracking of all inputs and outputs associated with the LDSP, EP and IHP; it also provides calibrated routines to predict freshet, mid-summer and late fall conditions using continuously updated data associated with HLF and LDSP operations (i.e., daily stacking rates, water transfers between various facilities, climate data, etc.)	Updated reports for the HLF WBM and the SWBWQM will be provided as part of the annual report submission. The SIMPs file is updated daily/weekly (depending on data types) and will continue to be used to provide monthly updates regarding pond levels and transfers between ponds (as part of WUL monthly reporting requirements), and will be used to provide pre-freshet, mid-summer and late fall predictions.
	iii. actual values of initial and residual moisture content	Residual moisture content data utilized in the HLFWBM submitted in 2023 remains and will remain informed by the Brooks-Corey calculation. Further, the results from the In-Heap Pond Verification test confirm that the values utilized are appropriate.	VGC will continue using this approach for the annual submittal for HLFWBM. For interim water balance projections (i.e., mid-summer and late fall) VGC will use excel based modelling within the SIMPs file, which more readily allows for incorporating actual ore moisture values and future and historic makeup water trends (liters per tonne) to project demand based on the evolving seasonal observations.
	iv. inputs of license flow rate (2070 m3/hr) along side operational flow rate (1500 m^3/hr)	The HLFWBM submitted in 2023 used a solution application rate that was informed by the measured values from 2022 operational data (summarized in Table 2-6.1 of the Annual Report – 2022) and also considered a nominal maximum flow rate of 2,070 m^3/hr (corresponding to a leaching application rate of a 10 L/hr/m^2). VGC will continue to utilize actual solution application rates and trends based on seasonal consideration for the Annual submittal of the HLF WBM.	An updated report for the HLF WBM will be provided as part of the annual report submission.
	v. actual values for the in-heap pond based on the verification test (June 2022)	The In-Heap Pond Verification Test undertaken in 2022 confirmed the assumptions regarding In-Heap Pond volumes utilized in the previous HLF WBM. The recommendations and comments provided in the 2022 Piteau memo were valid and considered when the test methods were being finalized. The In-Heap Pond volume utilized in the HLFWBM submitted in 2023 thus remains unchanged. These values will continue to be used and will be verified again in accordance with Clause 71 of QZ14-041-1. No adjustments are necessary.	No deliverable.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	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.	The MWTP became operational in January 2023. The SWBWQM now includes the MWTP as a modelling node and integrates triggers (i.e., stored volume thresholds) in the EP and LDSP to ensure that site operational practices are appropriately characterized. When the LDSP threshold is predicted to be reached, water is transferred to the EP. When the EP does not have capacity for the full DAS (noting that this is a conservative trigger as the available storage in the In-Heap Pond is part of the actual DAS requirement), the model assumes water is sent to the MWTP for treatment and discharge.	VGC will continue to use thresholds in the SWBWQM for transferring water to the MWTP to minimize the need to transfer water from the LDSP to the EP. The thresholds will continue to be evaluated as part of adaptive management protocols to see if they require any modifications in model evaluations.
	vii. consideration of no operating MWTP	No adjustments to account for this request are being contemplated at this time. It is not clear what the purpose nor scope of this request is intended to capture. The SWBWQM includes predictions of the volume of water that would need to be treated to ensure water management practices do not lead to a release of untreated contact water. Without a specific duration intended to be modelled for no operation of the MWTP, the volume intended for treatment could simply be assumed to be released once all containment facilities are full. The timing, duration, initial conditions (e.g., pond volumes, leach area, etc.), and hydrometeorologic conditions for this scenario would all need to be defined for the exercise to be of value and, with the MWTP operational and performing within specifications, the value would appear to be somewhat limited even with more defined model setup parameters.	No deliverable.
	viii. consideration of cyanide destruction	No adjustments to account for this request are being contemplated at this time. It is not clear what consideration is being requested in this point. The HLFWBM does consider when active treatment of process solution would be necessary to reasonably manage process solution. The HLFWBM also provides the expected probabilities for an overtopping event when treatment of process solution within the Events Pond would be necessary. Further, this request does not have any bearing on the use of a calibrated, operational water balance model which does not consider individual parameters that might or might not need treatment.	No deliverable.
	ix. actual stacking rates, when appropriate (e.g., determining future actions or evaluating past circumstances)	Both models (HLF WBM and SWBWQM) will continue to be calibrated based on observed conditions with stacking rates considered insofar as they contribute to the overall stacked volume/tonnages when the model period commences. The planned stacking rates will continue to be utilized in the HLFWBM and, by virtue of the HLFWBM makeup water demand, the SWBWQM. Further, the SIMPs file already incorporates all historical stacking rates which provides the basis for predicting water usage under various future scenarios.	All stacking rate assumptions are updated annually as a component of the annual modelling/reporting process, and will continue to be included in the HLFWBM Annual Report. If material changes to mine plan assumptions are considered/possible post submission of the HLFWBM Annual Report submission, these changes will be considered in the SIMPs update submission.
	x. site-specific data modelling to estimate both peak and seasonal snowmelt volumes	For the purposes of every annual update to the SWBWQM and HLFWBM, the site-specific data record (from snow surveys and climate station data) is updated and then considered by the technical experts during their evaluation	Snow and climate data are updated each calendar year and then incorporated into the development of both models as part of Annual reporting. This data is also tracked and utilized in the SIMPs file.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
		of whether any updates to the synthetic climate record are required. Both models include considerations for peak and seasonal snowmelt volumes. The synthetic climate record development approach is discussed in detail in the Eagle Gold Hydrometeorology Report - 2021 (Lorax Environmental, 2021). The division of precipitation between rain and snow and the calculation of excess water (rain and melt) are represented in Forte's HLFWBM by using Snow 17, which is a sub-model that takes average daily temperature and precipitation as the critical inputs, and corrects for seasonal solar radiation changes, latitude and altitude in the implicit calculations of melt factor, and lapse rate most notably. Snow 17 also makes use of daily heat deficit, accounting for the internal condition of the snowpack based on the net heat transfer effects due to daily temperature and precipitation at the snow surface. Lorax's SWBWQM represents streamflow (as quick flow, interflow and baseflow) using a modified version of the Birkenes model (Christophersen and Seip, 1982) to account for variability in catchment areas and specific representation of snowfall/melt processes during freshet and aufeis production during winter. The Snow 17 approach yields similar results to the method used by Lorax. In Forte's experience for heap operations SNOW 17 more closely aligns to measured snowpack on heap surfaces and provides a better representation of snow accumulation and snow melt for heap leach operations.	
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	As part of annual reporting and future predictions associated with water management practices, the SWBWQM now has thresholds imbedded in its operating rules to trigger or stop transfers when specific maximum and minimum volumes for the EP and LDSP are reached, and for operating the MWTP at specific treatment rates. The SIMPs file is the primary tool used to support daily, weekly and monthly forecasting decisions associated with overall site (including HLF, LDSP and MWTP) water management decisions, including the need to reduce encroachments on the DAS.	SWBWQM and HLFWBM will continue to be updated annually as per QZ14-041-1, while SIMPs results will be used for mid-summer and late fall reporting. The SIMPs file will continue to use calibrated predictive functions and be used to support water management on site.
	ii. To replicate infringements on DAS	There is no meaningful rationale for replicating prior infringements on the DAS, which were outcomes associated with water management decisions based on real-time events prior to the commissioning of the MWTP. Now that the MWTP is commissioned and operating, the modeled conditions that will lead to DAS encroachments will be different and will need to incorporate the use of the MWTP. The SWBWQM and HLFWBM will continue to be used as forward-looking models that will be updated once every year (as part of Annual Reporting). They will be used to predict potential infringements on the DAS over a longer time frame (yearly) and are also used to help develop more long-term strategies for water management decisions. The SIMPs file will continue to be used to inform on-time water management decisions on a daily/weekly basis, including the potential for infringements on the DAS.	Revisions to the SWBWQM and HLFWBM will continue to occur on an annual basis. They are updated in March every year using databases that integrate data from the previous calendar year. The SIMPs file is updated daily/weekly (depending on data types) and will be used to provide timely updates regarding potential infringements on the DAS.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	iii. To verify ore properties (initial moisture, residual moisture, and active leaching moisture)	The HLF WBM is not used to verify ore properties but uses measured values for initial, residual and active leaching ore moisture. Ore moisture values (initial, residual and active leaching) will continue to be updated each year as part of the annual HLF WBM reporting. Most recently, the IHP pumping test (conducted in July 2022) verified the current assumptions for active and leaching moisture contents.	Any revisions to ore property assumptions will be reported on an annual basis as part of annual reporting.
	iv. To verify sufficient pond capacity to safely store solution prior to freshet	Experience gained during this year (2023) will reflect new conditions (i.e., MWTP operations) and provide further input to the SWBWQM and the SIMPs file, which will provide annual and daily/weekly projections, respectively, regarding the evolving available pond capacity to safely store solution in the EP prior to and during freshet.	Revisions to the SWBWQM and HLFWBM will continue to occur on an annual basis. They are updated in March every year using databases that integrate data from the previous calendar year. The SIMPs file is updated daily/weekly (depending on data types) and will be used to provide monthly updates (as part of WUL monthly reporting requirements) regarding available pond capacities and the ability to store solution prior to freshet.
	v. To determine the necessity and/or size of an Emergency Pond	Continued use of modelling (SWBWQM) and SIMPs monitoring based on operational experience of the MWTP will be used to evaluate the appropriateness of storage capacities of the existing facilities, while considering triggers developed to manage freshet and rainfall events volumes.	As above.
	vi. To evaluate whether additional mitigations are necessary to prepare for freshet each year (e.g., raincoats)	Continued use of modelling (SWBWQM) and SIMPs monitoring based on operational experience of the MWTP will be used to evaluate the appropriateness of any additional mitigations to address any potential infringements on the storage capacities of the existing facilities.	Revisions to the SWBWQM and HLFWBM will continue to occur on an annual basis. They are updated in March every year using databases that integrate data from the previous calendar year. The updated HLF OMS is scheduled for Q1, 2024. The updated HLF CWMP is scheduled for Q1, 2024.
c. The GoldSim water balance model should be updated regularly using monthly data.		Fluid level data is tracked on a 6-hour basis using the GoldSim model, and also integrated daily/weekly using the SIMPs file for overall site water management decisions associated with the use of the Events Pond and LDSP. The SIMPs file uses precipitation data gathered each month and is also updated daily/weekly with water transfer data, pond levels, pond inputs/outputs, MWTP treatment rates, ore production rates and make-up water uses. Daily monitoring and reporting and predictive analysis will continue to help guide our onsite water management practices.	As above.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
d. The WBM should generally align with the OMS and other related documents.		The HLF WBM will continue to be updated each year as part of the annual report submission, the other three documents will be aligned in their next update.	The HLF WBM is reported on annually (March 31 each year). The next revisions of the other three are estimated as follows: WMP – December 31, 2023 HLF CWMP – Q1 2024 HLF OMS – Q1 2024
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.		Data and predictive estimates for contingency planning will be conducted using two separate platforms. As per QZ014-41-1, the HLF WBM will continue to use stochastic modeling to look at potential conditions over the short term (months) while it will use deterministic modeling to look at the longer-term picture. At the same time, the SIMPs file will be updated to include predictive analyses for examining potential conditions during the up-coming pre-freshet, mid-summer and late fall periods.	We will continue to provide pre-freshet analysis and freshet predictions in the annual report submission (March 31 each year). Mid-summer updates and forward-looking estimates (into the fall) will be provided by August 1st each year, while late fall and forward-looking conditions (through winter) will be by November 1st each year.
2. Updated Cyanide Management Plan			
a. To reflect current site conditions including, but not limited to:		The updated CMP was submitted for review and approval on June 15, 2022. We received comments on the updated CMP from various YG Departments which included Bill Slater's August 2022 review on December 8, 2022. Our response to these comments is provided below.	A CMP update will be provided in Q1 2024.
	i. The current water management system (e.g., water transfers, discharges, etc.)	The CMP and WMP will be updated and better integrated to incorporate operational experience with the MWTP and routine inspections to address secondary containment, culvert covers on the connection points, and to ensure sloping entrance points and have proper culverts.	A CMP update will be provided in Q1 2024 that addresses the integration of the current water management system.
	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)	An SOP will be developed to address criteria for grading upkeep and secondary containment. The SOP will include an inspection schedule, and a description of the reconfiguration on the east side of the ADR pad and the configuration of the cutoff trench, which will also identify where routine inspections will be conducted. The updated HLF OMS will include the inspection schedule, acceptable tolerance limits for grading conditions and overall solution flow boundary conditions, and action items to address unacceptable conditions.	A CMP update will be provided in Q1 2024 that addresses the integration of the current water management system. The updated HLF OMS will be Q1 2024. The regrading SOP will be provided with the HLF OMS.
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).	Protocols for the transfer of storm water from the LDSP to the EP are being developed. They will be incorporated in the updated CMP, WMP and HLF OMS. Further, a sampling strategy (locations, type and frequency of analyses of EP water) will also be included in an updated EMSAMP.	A CMP update will be provided in Q1 2024 that addresses the integration of the current water management system. The updated WMP is scheduled for December 31, 2023. The updated HLF OMS will be provided Q1 2024. An updated EMSAMP will be provided by Q1 2024.
Additional Updates to the CMP based on Yukon Government's review of the June 15, 2022 version 2022-01			
Section 1.2 – second sentence	States that CMP reflects final as-built designs but does not specify which designs are being	The updated CMP will clarify all references to as-built designs	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	referenced Clarify which as-built designs are reflected in the CMP.		
Section 4.3 Prevention	This section provides a great opportunity to discuss PPE and personal monitoring devices or any other preventative measures regarding workforce exposures. Add key examples of preventative measures such as HCN monitoring devices.	Key examples of preventative measures will be included in the updated CMP.	As above.
Section 5.1.1 – Plans and Procedures	This section documents safe operating procedures and training for employees dealing with Cyanide. There is opportunity here to expand and discuss availability/access of the plans and SOPs to worker on the ground (e.g., copies that are likely kept in the ADR facility). Add discussion on accessibility of plans and procedures, including SOPs, to workers on the ground performing applicable tasks.	The updated CMP will include a discussion on the accessibility of plans and procedures, including SOPs, to workers on the ground performing applicable tasks.	As above.
Section 5.1.3 – Preventative Maintenance	It is unclear what the process is to ensure an inventory of commonly failed parts within the ADR (pumps, valves, etc.) are readily available for replacement. Further clarify the process or reference the location of this information.	The updated CMP will provide clarification regarding the process to ensure an inventory of critical spares are readily available for replacement.	As above.
Section 5.1.3 – Preventative Maintenance	Routine maintenance is not referenced in the section. Include routine/preventative maintenance in section or reference the location of this information.	The updated CMP will include references to routine/preventative maintenance actions.	As above.
Section 5.1.3 – Preventative Maintenance Section 5.7 – spill prevention and containment measures	There have been lessons learned from past cyanide spills which should be incorporated into the preventative maintenance section (e.g., routine grading of lined area around ADR to ensure any solution flows into lined area). SOP-PRO-205 that is referenced only contains routine maintenance for the storage and mixing areas. Elaborate on preventative measures taken to ensure cyanide solution is contained and ensure all appropriate SOPs are referenced (or even the OMS, if applicable).	Relevant SOPs will be updated to include an accounting of lessons learned from past cyanide spills.	The updated SOPs will be provided with an updated CMP in Q1 2024.
Figure 5.3-1 – water balance model	The water balance model depicted is for the entire site. The HLF-specific water balance model is more directly applicable and should be included. This will also reduce the	The site water balance model report and schematics include all necessary detail about the management of HLF water/solution and how site water management is integrated with MWTP operations. Thus, while VGC is not	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	likelihood of a required update with the onset of the MWTP. Include HLF water balance model schematic.	entirely clear on the request for a standalone HLF WBM schematic, we will also provide one in the updated CMP.	
Section 7.2.2 – Ambient/Personal Monitoring Devices	Newly developed VGC-SOP-HSS-022 (Gas Badge Accountability Process) should be included in the CMP and discussed in this section. Include in Appendix A	The SOP-HSS-022 will be included as an Appendix to the CMP.	An updated CMP will be provided in Q1 2024.
Appendix A - SOPs	There are a lot of SOPs contained in Appendix A and it would be helpful to have a TOC or list of SOPs up front to more easily navigate the appendix. Add list or TOC at the top of Appendix A.	The TOC to the updated CMP will include all the SOPs included as appendices.	An updated CMP will be provided in Q1 2024.
Appendix A – SOP for water transfers	VGC has been moving storm water to the EP due to limited storage capacity and no active water treatment plant. Protocols to ensure the EP does not contain cyanide should be outlined in an SOP and undertaken prior to any storm water transfer to the EP. The Mine water treatment plant is unable to destruct cyanide, therefore if EP water requires treatment is may also require cyanide destruction, which is only available in the ADR.	The updated CMP will include protocols to ensure the EP does not contain cyanide above EQS prior to any transfer to the LDSP or the MWTP.	An updated CMP will be provided in Q1 2024.
Figure 4.1-2 and Section 5.7	Both reference the lined secondary containment under and around the ADR. Corrective actions as a result of the June 2021 cyanide spill indicate the need for regrading. Proper grading is a preventative maintenance and should be done regularly. Has the re-grading of material around the ADR been corrected to flow into lined area? If not, when? Other corrective actions?	An SOP is being developed to address criteria for grading upkeep and secondary containment. The SOP will include an inspection schedule and identify where routine inspections will be conducted. The updated HLF OMS will include the inspection schedule, acceptable tolerance limits for grading conditions and overall solution flow boundary conditions, and action items to address unacceptable conditions.	The updated HLF OMS will be provided in Q1 2024. The regrading SOP is scheduled for completion during Q1 2024.
Section 5.1.2	First paragraph mentions “maximum precipitation events” without delineating what that is. In points below “assumed storm events” is used. What does “maximum precipitation events” mean? Does it relate to regulatory requirements for design? Language needs to consistent and clear.	The updated CMP will clarify the meanings of maximum precipitation events and be consistent with language used for engineering design and regulatory guidance documents.	An updated CMP will be provided in Q1 2024.
Section 5.3.1 – general inputs	Last bullet references an emergency pond. What pond is this referring to? Clarify statement.	The updated CMP will provide clear references to specific ponds.	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
Section 7.1.1 – Exposure Risk Assessment	Have additional problematic HCN areas been identified in the ADR? If so, will additional stationary HCN gas detectors be installed in the ADR?	No additional problematic areas have been identified in the ADR; however, the air distribution and management system has been completely revised to further manage areas where HCN gas could be problematic.	NA
Appendix A – SOP-PRO-201 Section 4.2	Section 4.2 mentions the use of crane facilities for lifting and positioning reagent supersacks during solution preparation, yet the use of this equipment isn't mentioned in the solution preparation SOP. SOP-PRO-201 needs to be updated with thorough instructions, including instruction on the use of each piece of equipment required for the work, or reference to equipment-specific SOPs.	SOP-PRO-201 will be updated with thorough instructions, including instruction on the use of each piece of equipment required for the work, or reference to equipment-specific SOPs.	An updated SOP-PRO-201 is scheduled for Q1 2024.
Document control – Pg. I	Second sentence says "The table below is intended to identify modifications to the Plan compared to Version 2019-02…." This is inconsistent with the table title which indicates these are updates from the 2021-01 version. Ensure the correct version is referenced properly in both locations.	The updated CMP will ensure the correct version is referenced properly.	An updated CMP will be provided in Q1 2024.
Section 1.1 – last sentence	Reference to Appendix A should be made when SOPs are discussed. Add reference to Appendix A.	The update CMP will add the reference to the appropriate appendix.	An updated CMP will be provided in Q1 2024.
Section 3.2	This section looks as though it's an exact replica of Section 2.2. There is no need for this redundancy. Delete section, or simply reference section 2.2 instead.	The updated CMP will reflect this change.	An updated CMP will be provided in Q1 2024.
Table 5.1-2 - inspections	Proper use of PPE is referenced for almost all items, but the availability and accessibility is not. Add accessibility/availability of PPE to the list.	The updated CMP will provide the additional information regarding accessibility and availability of PPE.	An updated CMP will be provided in Q1 2024.
Section 5.1.9 – preventative maintenance	This section is very repetitive of Section 5.1.3. Consider combining or rephrasing to be more topic-specific.	The updated CMP will reflect any changes made to consider this recommendation.	An updated CMP will be provided in Q1 2024.
Section 5.1.10 – critical power	The opening statement does not make it clear if there is only sufficient backup generation capacity for the HLF or if it is a part of a much larger back-up generation system. SOP-010 details this more clearly. Clarify statement of ensuring appropriate back-up power.	The updated CMP will provide clarification regarding statements associated with backup power generation, and ensure the language is consistent with SOP-010.	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
Section 5.3.2 – general inputs	The first bullet says that the predicted range of rates that barren solution could be applied is considered. Yet, the water balance model does not consider maximum rate allowed by regulatory authorizations. Clarify statement.	The updated CMP will provide any necessary clarification regarding the operating range of the barren and pregnant pumps.	An updated CMP will be provided in Q1 2024.
Section 6.2.3 – jurisdictional requirements	We do not "negotiate" financial security, it is determined. Required: do not use the term negotiate.	The updated CMP will clarify the jurisdictional requirements/process with respect to financial security.	An updated CMP will be provided in Q1 2024.
Additional Updates to the CMP based on the August 16, 2022 Bill Slater review of the June 15, 2022 version 2022-01			
General Overview Comment From an overview perspective, my main expectations were that the updated Plan would address two important issues that are apparent from ongoing operations: 1. Incidents related to cyanide management at the site, specifically including five releases of process solution (one from the ADR Plant and four from the HLF). 2. Management of freshet runoff from outside of the HLF catchment that has led to annual incursions into the Desired Available Storage for the HLF/Events Pond.	Unfortunately, the revised Plan does not effectively address either of these issues. Also, the 2021 CMP Audit does not refer to either the spill incidents or the management of Desired Available Storage. It is not clear whether the auditor was made aware of these issues when conducting the audit.	There are two inferred recommendations regarding 1) the incorporation of lessons learned regarding past spills, and 2) the scope of future CMP Audits – in particular to ensure the auditor is aware of site water management practices regarding the Events Pond. The update CMP will incorporate lessons learned including the prevention and mitigation of potential spills. For future CMP Audits – the auditor will be appraised of all site water management practices regarding the Events Pond.	An updated CMP will be provided in Q1 2024.
General Comment regarding releases of process solution	With respect to the releases of process solution, the wording in the Plan does not acknowledge or identify the failure mechanisms that led to the releases. In the case of the release from the ADR Plant, the Plan describes a system in which the ADR Plant has adequate secondary containment as part of the floor construction, and that if secondary containment is exceeded, flows either be pumped, or will naturally report back, to containment in the HLF. In June 2021, changes made to the flow circuit in the ADR Plant led to tank overflows that exceeded the capacity of the secondary containment, and the excess flows did not report to the HLF.	There is an inferred recommendation for the next CMP to incorporate lessons learned from past spill events associated with grading related issues. Regrading of materials to ensure containment is addressed above in Section 2. a.	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	Instead, “road material build up and grading” (July 2021 Spill Report) led to migration of solution outside of containment. The Plan provides for a review and approval mechanism (Eagle Gold Operating Procedures – Cyanide Facility Change Management Process) before changes are made to the ADR circuit, potentially addressing the first part of the failure, but it does not include any mechanisms to address the grading-related issues. Three of the releases from the HLF were also associated with issues of grading and placement of material, two at a footing for the conveyor and one along an access road. Despite these three failures, the CMP does not identify the grading and material placement as a potential source for failure mechanisms and there are no revisions to the Plan or the Standard Operating Procedures that specifically aim to prevent further occurrences of this type.		
General Comment regarding the management of freshet runoff	With respect to management of freshet runoff, the descriptions of Events Pond water management in the revised Plan are not consistent with how the Events Pond has actually been, and is being, used – especially the use of the pond to manage sediment laden runoff accumulated during freshet from areas outside of the HLF catchment. During mine planning and design, the Events Pond was specifically in place to address flows from the HLF catchment. Also, the revised Plan does not describe what measures Victoria Gold (VG) will take to avoid continued annual encroachment into the Desired Available Storage Capacity under normal spring operating conditions. The FNNND raised concerns during the water licensing process about these types of uses of the Events Pond because they increase the risks associated with water management failures associated with cyanide solution at the HLF.	There are no recommendations in this general comment, however, the concepts are addressed above in Section 1.	NA
General Comment – Integration of lessons learned	The CMP should be further updated to specifically address the lessons learned from past failure events and management	The updated CMP will include a section that addresses lessons learned from past failure events and subsequent management challenges. The update will	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	challenges. A further revised plan should demonstrate that VG has clearly put in place measures that are aimed at preventing similar failures and addressing management challenges in the future.	include operating measures that are aimed at preventing similar types of failures.	
General Comment regarding cyanide transportation	A further gap in the CMP is any detail about managing issues related to transportation of cyanide to the site. VG notes that it has contractual arrangements with the cyanide supplier (Cyanco) for management of the entire supply and deliver chain. Cyanco is a certified cyanide producer under the International Cyanide Management Code (ICMC). The CMP refers to Cyanco's "Global Transportation Emergency Response Plan" with a specific annex for Canada. However, no details are provided about Cyanco's plan, and VG states that the document is confidential. It is unclear whether there has been any regulatory review of cyanide management during transportation to the site, or if this is overlooked because VG has contracted the responsibility to a third party. Yukon Government should confirm whether the transportation of cyanide to the Eagle Gold site has been subject to any regulatory oversight, and if so what. In its review of the CMP, the FNNND identified the need for additional emergency response supplies spaced along the access road – with supplies to clean up spills that include hydrocarbons and cyanide.	VGC will incorporate any relevant and appropriate modifications to the management of cyanide storage/transport in the updated CMP.	An updated CMP will be provided in Q1 2024.
CMP Section 1.1	This section references codes and protocols prepared by the International Cyanide Management Institute (ICMI), and states that VG's CMP is designed in accordance with these documents. While more than 50 mining operations are signatories to the ICMC prepared by the ICMI, VG is not one of them. No update to plan necessary	No update to plan necessary	NA
CMP Section 2.2	This section describes VG's plans for supply of cyanide if its primary ICMC-certified supply is interrupted for some reason. In such an event, VG states that it intends to locate other ICMC suppliers, but it has not yet investigated	No update to plan necessary	NA

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	other supply chains. Potential alternate ICMC-certified suppliers should be identified in advance.		
CMP Section 4.1	This section describes cyanide unloading and storage. Shipping containers are initially unloaded onto a concrete pad adjacent to the ADR Plant. Inside the shipping containers, the cyanide is in solid form (briquettes) in nylon "supersacks" that are then packed in plastic-lined plywood pallet crates. It appears that the cyanide crates remain in the shipping containers on the concrete pad until they are needed in the ADR Plant – i.e., the shipping container is not immediately offloaded into the storage area in the ADR Plant. While the supersacks, lined-plywood crates and shipping containers provide secondary containment, the concrete pad does not appear to have any form of containment. This means that it is critical that any spills of solid cyanide in this area are cleaned up immediately and safely.	No update to plan necessary	NA
CMP Section 5.1.6	This section states that cyanide facilities are subject to "routine" inspections, and results are reviewed on a "regular" basis. Similarly, Section 5.3.3 refers to "periodic" inspection of upgradient interceptor ditches. Other sections include similar vague wording about frequencies for monitoring and inspections of various facilities and activities. In many cases, the CMP refers to "VGC-SOP-PRO-205 Sodium Cyanide Facility Inspections." Unfortunately, this standard operating procedure is not included in the CMP, leaving uncertainty about specific inspection requirements. The operating procedure should be reviewed to ensure that adequate inspections are required. For example, in discussions arising from previous spill events, the FNNND has noted its expectation that there must be at least daily inspections of HLF ditching and berms.	SOP-PRO-205 will be reviewed to help better define minimum monitoring frequencies, and then updated as necessary following a review that considers the recommendation.	The updated SOP-PRO-205, if needed, is scheduled for Q1 2024.
CMP 2021 Audit	The audit identified concerns about lack of reporting and record keeping for inspections, noting that VG was not able to provide reports of many routine inspections. The CMP and	No update to plan necessary; CMP 2022 Audit noted that record-keeping processes were improved.	NA

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	standard operating procedures should clarify requirements for review, reporting and record keeping.		
CMP Table 5.1-2	This table identifies things that should be observed during inspections of cyanide facilities. For the "HLF earthworks, risers, distribution lines, emitters, internal pond(s), and leak detection system" the list does not include observations of things that would help to prevent the types of failures that have led to release of cyanide solutions in the past – issues related to grading and material placement (see above general comments). The inspection list should be revised to address these specific issues.	The updated CMP will include an inspection list that addresses issues related to lessons learned from past failures.	An updated CMP will be provided in Q1 2024.
CMP Section 5.2	This section and the CMP Audit both assert that ICMC Standard of Practice 4.2 related to optimization of cyanide usage is not relevant because the Eagle Gold Mine does not process ore in a mill and does not have mill tailings. The Standard states: "Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings." Despite the lack of a mill, the Eagle Gold Mine relies on the same cyanidation process for gold recovery as that carried out in a mill, and will leave a spent ore heap rather than tailings. As a result, the optimization of cyanide use in order to avoid elevated concentrations in the heap at the conclusion of gold recovery is likely also relevant to the Eagle Gold Mine. The CMP should be revised to include consideration of Standard of Practice 4.2.	The updated CMP will include any appropriate revisions, if needed, to address the ICMC Standard of Practice 4.2. It should be noted that there is a distinct difference between mill tailings and heap leach facilities in the use and eventual residual storage of cyanide. Residual cyanide in mill tailings is generally not flushed, whereas, the heap rinsing and drain-down processes eventually reduces the quantity of residual cyanide left in the facility.	An updated CMP will be provided in Q1 2024.
CMP Section 5.3.4	This section notes that the water balance includes consideration of storage in the Events Pond and refers to the Desired Available Storage considerations. However, the description for water balance modeling does not describe how the pond has actually been used, specifically that it has been used as a reservoir for storage of non-compliant runoff water from areas of the site outside of the HLF catchment. Also, there is no discussion about encroachment on the Desired Available Storage Capacity as a	See above in Section 1: Development and consistent use of a Calibrated, Operational Water Balance Model. Additionally, the CMP will be updated to more accurately describe site water management practices.	As above.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	result of these water management actions. Similarly, Figure 5.3-1, the conceptual model for the water balance, does not contemplate storage of water in the Events Pond for runoff management. Overall, VG should identify water management measures that will avoid future encroachment on the Desired Available Storage Capacity for reasons other than extreme events in the HLF catchment. In any case, the water balance should be updated to reflect actual water management practices because the current practices will increase the risks that cyanide solution or mixtures with cyanide solution would need to be released. If the water balance predicts continued annual encroachment on Desired Available Storage, this would confirm that other measures are required to maintain the storage capacity as required in the licence.		
CMP Section 5.4-1	This section focuses on wildlife protection from cyanide solution. The Section describes water management in the Events Pond, but it is not consistent with the actual water management that is carried out at the site – see above comments. The actual water management practices affect the wildlife management measures, and should be reflected in the CMP. Similarly, the Eagle Gold Operating Procedure – Monitoring and Maintenance of Solution Pond Avian Protection System includes descriptions of Events Pond water management that are not consistent with current practices.	The updated CMP will reflect actual water management practices for the Events Pond. The Operating Procedure – Monitoring and Maintenance of Solution Pond Avian Protection System will be updated to reflect current Events Pond water management practices.	An updated CMP will be provided in Q1 2024. The updated OP is scheduled for Q1 2024.
CMP Section 5.5.1	This section discusses direct discharges of effluent to surface water. The CMP asserts that direct discharges from the HLF and Events Pond are not necessary during operations. However, direct discharges from the Events Pond have already occurred due to current water management practices. These discharges are not of process solution, but nonetheless need to be addressed in the CMP because they are discharges from the containment system for cyanide solution. Discharge that contain cyanide solution are more likely given the current practices that	The updated CMP and WMP will reflect the current water management practices for the Events Pond.	An updated CMP will be provided in Q1 2024. An updated WMP is scheduled for December 31, 2023.

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	lead to encroachment on the Desired Available Storage capacity.		
CMP Section 5.5.2	This section states that the "HLF and event pond are both fully lined facilities with interstitial leak detection arrangements." This is not an accurate portrayal for the HLF where only part of the facility has leak detection. The actual design is more accurately portrayed in the CMP Audit.	Section 5.5.2 in the updated CMP will be revised to provide a clearer description of the liner system.	An updated CMP will be provided in Q1 2024.
CMP Section 5.7.1	This section provides the description of secondary containment in the ADR Plant. It should be revised to describe containment in circumstances like the June 2021 incident, where the failure mechanism was not related to tank failure and overflows exceed the capacity of a single tank and therefore the capacity of secondary containment.	The updated CMP will describe containment during circumstances like the June 2021 incident, where the failure mechanism was not related to tank failure and overflows exceeded the capacity of a single tank and therefore the capacity of secondary containment, and where the overflow would be directed to containment provided by the HLP.	An updated CMP will be provided in Q1 2024.
CMP Section 8.1.1	This section states that unloading of cyanide is conducted within the contained areas of the ADR Plant. This is not consistent with the descriptions of unloading described in Section 4.1, where unloading occurs on an adjacent concrete pad that appears to be outside of containment.	The CMP will be updated to include a figure that depicts the locations for unloading cyanide.	An updated CMP will be provided in Q1 2024.
CMP Section 8.1.2	This section states that a risk assessment of cyanide emergency scenarios was conducted prior to operations. The Section lists scenarios that were considered in the risk assessment. However, aside from pipe leaks, none of the scenarios that led to release of cyanide solution from the HLF were identified in the initial risk assessment. The risk assessment should be repeated based on experience gained in operations, including consideration of scenarios like those that have actually occurred on site.	The CMP will be updated to include discussion of prior failure mechanism and the remediation/mitigations actions taken including ongoing maintenance and monitoring of these actions.	An updated CMP will be provided in Q1 2024.
CMP Section 8.4.2	This section describes approaches for notifications about emergency incidents. It proposes that notification of FNNND about serious incidents will occur through periodic communications that are part of ongoing initiatives. Only in the case of offsite incidents does the Plan propose immediate notification. This approach does not appear to be consistent with the past practice of immediate	The CMP will be updated to be consistent with the more rigorous notifications to the FNNND that VGC has provided. These are also triggered by the related Spill Response Plan requirements.	An updated CMP will be provided in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	notification of FNNND about serious incidents, whether onsite or offsite. The CMP should be revised to more accurately reflect the existing notification practices for the FNNND.		
Eagle Gold Operating Procedure – Cyanide Emergency Response Procedures	This procedure states that cyanide released in the ADR Plant will collect in sumps and will be pumped back into the HLF and that if pumps are inoperable, ADR overflow will flow in a lined trench back to the HLF. Neither of these mechanisms worked in the case of the June 2021 ADR Plant spill. The Procedure and the CMP should be revised to describe actual conditions and how to avoid the events that have occurred in the past.	Emergency response procedures for addressing a spill in the ADR will be revised to reflect how the system operates under a range of actual conditions.	The updated Operating Procedure for Cyanide Emergency Response is scheduled for Q1 2024.
Eagle Gold Operating Procedure – Cyanide Emergency Response Procedures	This procedure states that if any cyanide is released during unloading, staff will ensure that no water or liquid comes in contact with the material. Given that unloading and transfer occur in exposed areas, it is unclear how this could be achieved. Perhaps the Procedures should be revised to ensure that unloading and transfer do not occur in conditions where exposure to water is possible – e.g., no transfer of crates during rain.	Given the environment that the Project takes place in, the suspension of transfers during periods of rain is not practical and thus the current procedure will remain as previously described.	NA
Eagle Gold Operating Procedure – Cyanide Emergency Response Procedures	This procedure regarding incident Investigation and Reporting focuses on incidents related to health and safety. The scope should likely be expanded to include environmental incidents as well, or the two could be addressed in separate Procedures. The CMP document should also be revised to incorporate requirements associated with investigation and reporting on environmental incidents.	It is acknowledged that reporting on environmental incidents associated with a cyanide emergency are important considerations; however, to ensure that reporting remains clear and consistent to operational personnel, it is VGC's opinion that the CMP is not the appropriate document for providing this direction to staff. Reporting of these types of incidents are already contemplated in the Spill Response Plan and the EMSAMP.	NA
The Standard Operating Procedure – Sodium Cyanide Site Storage	This procedure lists PPE required for unloading and transferring sodium cyanide. The CMP Audit refers to a much more comprehensive listing of PPE requirements which should likely be reflected in the Procedure. The same procedure states that an additional person should be present for these activities. The procedure should be	The SOP will be updated to align with current site practices.	The updated SOP for Sodium Cyanide Site Storage is scheduled for Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	revised to state that an additional person must be present.		
ADR Operations Plan – Section 5.3	This section describes the cyanide destruction circuit. The ability to treat cyanide is a requirement of the water licence and the circuit is intended to meet this requirement. The circuit relies on carbon tanks in the ADR Plant being repurposed on short notice to use for reagent mixing and cyanide destruction. This requires installation of equipment to support mixing and reagent addition at the time that the system is needed. It is unclear whether this system has been tested and therefore it is not possible to know the practicality of implementation when needed. The CMP should require testing of the cyanide destruction circuit to confirm that it will function as planned in an emergency situation.	The updated CN Destruct System is now procured and installed. Flow functionality has been tested and the system operated as considered. The system utilizes dedicated reagent and reaction tanks, and there is no longer any dependency on the ADR carbon tanks. The cyanide destruct circuit design uses the Caro's Acid method, which has the advantage of a short reaction time which allows for the destruction process to be carried out in relatively small tanks, and that the final reaction by products are benign (bicarbonate and nitrate). The updated CMP will describe the procured and installed system.	An updated CMP will be provided in Q1 2024.
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	The updated HLF OMS will include specific procedures for keeping granular material (ore) inside containment, and to help prevent the migration of solution to beyond containment. This will be integrated into the SOP described above.	The HLF OMS will be updated in Q1 2024.
	ii. Routine inspection of mechanical connectors to ensure they are safely located or shielded containment (e.g., daily)	The updated HLF OMS will include an SOP that addresses the timing and frequency of routine inspections of mechanical connectors, the condition of safety shields, piping locations, and grading conditions, etc.	The HLF OMS will be updated in Q1 2024.
	iii. Frequent inspection of every location where granular material crosses	As noted above in 2.a.ii, an SOP is being developed to address the locations of where granular material crosses the HLP boundary.	The SOP will be included in the OMS update (Q1 2024).
	iv. And identify triggers for the construction of the Emergency Pond based on modelling, monitoring and reporting	Water level monitoring of the three ponds (IHP, EP and LDSP) will continue to be conducted daily. Each pond has associated threshold levels that indicate when certain actions need to be taken. These protocols will be included in the updated CMP, HLF OMS, HLF CWMP and WMP.	The next revisions of these plans are estimated as follows: WMP – December 31, 2023 HLF OMS – Q1 2024 HLF CWMP – Q1 2024 CMP – Q1 2024
	v. A map or maps of the instrumentation and monitoring locations	The updated HLF OMS will include a map of the instrumentation and monitoring locations.	The HLF OMS is scheduled to be updated in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	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.	The updated HLF OMS will include procedures to manage the build-up and mitigation of ice in the spillways, the embankment ditch, and drainage from the pad - all done to maintain containment of solution.	The HLF OMS is scheduled to be updated in Q1 2024.
	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).	The updated HLF OMS will include triggers and procedures that clarify when the Emergency Response Plan (ERP) should be implemented or when certain actions as described in the HLF CWMP need to be taken. These triggers and actions will be consistent with the Qualified Performance Objectives stated in CDA's 2014 guidance document (Application of CDA Dam Safety Guidelines to Mining Dams). There is no 2019 version.	The HLF OMS is scheduled to be updated in Q1 2024. The updated HLF ERP is scheduled to be updated in Q1 2024. The HLF CWMP is scheduled to be updated by Q1 2024.
	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).	The updated HLF OMS will include an overall approach to implementing corrective actions following a breach of containment or spill, and if necessary, implementation of the ERP.	The HLF OMS is scheduled to be updated in Q1 2024. The updated HLF ERP is scheduled to be updated in Q1 2024. The HLF CWMP is scheduled to be updated by Q1 2024.
	ix. Specific criteria to trigger the Earthquake Occurrence inspections (see ERP Table 5.2-1).	The updated OMS will include specific criteria that are triggered after an earthquake occurrence. These will be integrated with the HLF ERP.	The HLF OMS is scheduled to be updated in Q1 2024. The updated HLF ERP is scheduled to be updated in Q1 2024.
	x. A requirement for a list of critical parts and supplies inventory in appropriate locations (e.g., critical parts for and redundant pumps)	A critical parts and supplies list associated with the operation of the HLF and ADR is maintained within the Enterprise Resource Planning Software system utilized for all site procurement. The list includes minimum and maximum inventory amounts for all critical items. Once an item is removed from inventory, the ERP automatically determines if the remaining in inventory amount is within the minimum threshold and, if it is not, generates a reorder from the established vendor.	The critical parts and supplies list is currently maintained by VGC.
	xi. Mac 2019 and 2021 recommendations as applicable (e.g., Trigger Action Response Plans in Appendix 3 of MAC 2021a)	The MAC 2019 guideline (2nd Ed), "*Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities*," and the MAC 2021 guideline (3rd Ed), *A Guide to the Management of Tailings Facilities*, will be reviewed as part of the development of trigger actions and a response plan within the HLF OMS.	The HLF OMS is scheduled to be updated in Q1 2024.
	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)	There are no plans to update the current dam break analysis. The engineering assumptions for the analysis have not changed and the analysis can still be used to demonstrate the extent of a dam break from the HLF and then identify evacuation routes. The updated HLF OMS will include a section that describes triggers and response actions associated with a dam break.	The HLF OMS is scheduled to be updated in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	xiii. Specify surveillance frequency for instruments which cannot be automatically reported (e.g., inclinometers)	The updated HLF OMS will include the surveillance frequency for instruments (e.g., inclinometers) that are not automatically reporting.	The HLF OMS is scheduled to be updated in Q1 2024.
	xiv. Discussion on how critical instrumentation data will be retrieved during an extended power outage (e.g., Piezometers)	The updated HLF OMS will include a description of critical instrumentation data (e.g., piezometers) and then discuss how this data will be retrieved during a power outage.	The HLF OMS is scheduled to be updated in Q1 2024.
	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)	The updated HLF OMS will include a revised SOP for the collection of monitoring data; the SOP will be reviewed and revised, as appropriate, to reduce the potential for inconsistencies in monitoring tasks and data collection.	The HLF OMS is scheduled to be updated in Q1 2024.
	xvi. Table 9.1-1 consistent with the language of Section 9 and actual practice	Table 9.1-1 and Section 9 will be reviewed for language consistency and VGC's actual practice.	The HLF OMS is scheduled to be updated in Q1 2024.
	xvii. Clear actions to bring EP levels back down after DAS is exceeded (e.g., stop solution transfers into the system)	The HLF OMS will be updated to include response actions that will be linked to thresholds on EP levels. The actions will include the need to manage and/or stop solution transfers based on pond levels and the encroachment on the DAS. The WMP and HLF CWMP will be integrated with the HLF OMS to include these types of response actions.	As stated above, the next revisions of these plans are estimated to be completed as follows: WMP – December 31, 2023 HLF OMS – Q1 2024 HLF CWMP – Q1 2024 HLF ERP – Q1 2024
	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.	The HLF Engineer of Record (EOR) will review the In-heap Pond RL (1-4) levels and associated actions, including when and how long (response time) mandatory actions to reduce leakage flow rates to acceptable levels should be taken, and when (which RL) engineering assessments (performance and state of pressurization) of the condition of the secondary liner are required. Any EOR recommended changes to action items will be included in the revised HLF OMS.	The HLF OMS is scheduled to be updated in Q1 2024.
	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	The HLF EOR will review the Event Pond RL (1-4) levels and associated actions (including when liner repair should be mandated during the next dry season) associated with the EP and revise as appropriate. Any EOR recommended changes to action items will be included in the revised HLF OMS.	The HLF OMS is scheduled to be updated in Q1 2024.
	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)	The updated HLF OMS will include alert levels and actions associated with the monitoring results (i.e., evidence of movement) of survey monuments and inclinometers.	The HLF OMS is scheduled to be updated in Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	xxi. Trigger levels and actions associated seepage and underdrain monitoring	The updated HLF OMS will include trigger levels and actions associated with the monitoring results (i.e., flow rates and water quality findings) of the underdrain.	The HLF OMS is scheduled to be updated in Q1 2024.
	xxii. Delineation events that trigger event-driven inspection (e.g., earthquake movement, size or intensity of a large precipitation event, etc.).	The updated HLF OMS will provide a description of specific events and actions (e.g., earthquakes, large rainfall-runoff event, etc.) that trigger inspections.	The HLF OMS is scheduled to be updated in Q1 2024.
	xxiii. Information on required back-up power and the generator capacity to support operations.	The updated HLF OMS will provide information on required back-up power and where/how that back-up power will be supplied.	The HLF OMS is scheduled to be updated in Q1 2024.
b. To align better with related licensing documents (e.g., Water balance model, CMP, etc.)		The HLF OMS will be updated to align with the HLF WBM, CMP, WMP and the HLF CWMP and incorporate consistent terminology and approach including the identification of management thresholds and response actions	The next revisions of these plans are estimated to be completed as follows: WMP – December 31, 2023 HLF OMS – Q1 2024 HLF CWMP – Q1 2024 HLF ERP – Q1 2024 HLF WBM – annually by March 31
c. The term “trigger” should be more consistently and accurately used and be consistent with MAC guidelines.		In the updated plans, the terms trigger and threshold will be used in a manner that is consistent with MAC Guidelines.	The next revisions of these plans are estimated to be completed as follows: WMP – December 31, 2023 HLF OMS – Q1 2024 HLF CWMP – Q1 2024 HLF ERP – Q1 2024 HLF WBM – annually by March 31
d. Reconcile language of Table 9.1-1 with the language of Section 9 and actual practice		Section 9 and Table 9.1-1 will be reviewed and revised as required to reconcile any language differences or confusion.	The updated HLF OMS is scheduled for Q1 2024.
e. Re-evaluate trigger levels (EP elevations) and recommended or require 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)		EP water levels will be re-evaluated for appropriate trigger levels, response actions and response times. The updated HLF OMS will incorporate these re-evaluations.	The updated HLF OMS is scheduled for Q1 2024.
f. Provide operators with a number of simple ways to conservatively estimate the available in-heap dynamic storage capacity using available information		The updated HLF OMS will include a checklist that operators can follow to conservatively estimate available dynamic storage capacity.	The updated HLF OMS is scheduled for Q1 2024.
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)	The updated ERP will provide a figure/map that delineates evacuation routes that are well removed from the inundation zone.	The updated HLF ERP is scheduled for Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	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.)	The updated ERP will provide an updated Table 5.2-1 that will be consistent with current operations. The updated table will provide more details regarding thresholds and response actions associated with certain events (e.g., slope failure, dam failure, etc.).	The updated HLF ERP is scheduled for Q1 2024.
	iii. Additional clarity and details, as needed, to section 6 and tie preventative measures, site response, potential effects, and follow-up to specific causes.	The updated ERP will provide clarification as needed that describes the linkages between the incident type (i.e., preventative measures, site response, etc.) and specific causes.	The updated HLF ERP is scheduled for Q1 2024.
	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	The updated ERP will provide a description of those with specific authority levels associated with certain trigger events to order specific actions (e.g., rapid evacuation) during an event (e.g., embankment failure).	The updated HLF ERP is scheduled for Q1 2024.
	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)	The updated ERP will provide an updated Figure 8.8-1 that reflects the as-built condition of the mine site and provide updated evacuation routes appropriate for the magnitude and potential affected area of an event.	The updated HLF ERP is scheduled for Q1 2024.
	vi. A figure to show the entire extent of the inundation zone for an embankment failure	The updated ERP will provide a figure that shows the entire extent of the inundation zone associated with an embankment failure.	The updated HLF ERP is scheduled for Q1 2024.
b. Should reflect current operating conditions and as-built facilities		The update ERP will reflect current operating conditions and as-built facilities.	The updated HLF ERP is scheduled for Q1 2024.
c. Align with MAC 2021a, MAC 2021b, CDA 2013, and CDA 2019 as referenced in the report.		The updated ERP will use the relevant language and terminology that is consistent with MAC 2021a, MAC 2021b and CDA 2014. There is no relevant CDA 2019 document.	The updated HLF ERP is scheduled for Q1 2024.
5. Updated HLF Contingency Water Management Plan			
a. To include:	i. Available dynamic storage capacity expressed relative to the key variables influencing it	The key variables affecting dynamic storage will be reviewed by our operations team and then incorporated into the revised versions of the HLF CWMP and HLF OMS, as appropriate.	The updated HLF OMS is scheduled for Q1 2024. The updated HLF CWMP is scheduled for Q1 2024.
	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 m^3.	The updated versions of the HLF CWMP and HLF OMS will include a provision for examining potential drain-down rates and volumes during an upset condition for various dynamic storage scenarios.	The updated HLF OMS is scheduled for Q1 2024. The updated HLF CWMP is scheduled for Q1 2024.
	iii. Triggers linked with response actions consistent with WUL Clause 48 and the recommendations of MAC (2021a, 2021b)	The updated HLF OMS and HLF CWMP will include trigger levels and response actions associated with the encroachment on the DAS. These levels and responses will be reviewed based on the operational performance	The updated HLF OMS is scheduled for Q1 2024. The updated HLF CWMP is scheduled for Q1 2024.

Implementation Expectations		Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
		of the MWTP and site water management (including water transfer capacities) operations.	
	iv. Specific triggers and response action to implement the intent of WUL 102c (e.g., snow removal)	The updated HLF CWMP will consider the development of a snow management trigger based on the snow water equivalent of the snowpack (as per WUL 102c), and the historical snowpack data collected on the HLF and site. The update will also describe more on the rationale for how the SWE data is to be used.	The updated HLF CWMP is scheduled for Q1 2024.
	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.).	The updated HLF CWMP will provide a range of estimated available volumes based on a number of factors including for example, heap leach area, heap thickness, time of year, pumps available and operating, and as-built volumes for both the Events Pond the In-Heap Pond.	The updated HLF CWMP is scheduled for Q1 2024.
	vi. The minimum daily capacity of the MWTP to treat HLF solutions (i.e., cyanide destruction)	The MWTP and the CN Destruct Circuit has been constructed and commissioned to meet the terms of the WUL. The updated HLF CWMP will include relevant MWTP design elements to treat specific mine-site sources.	The updated HLF CWMP is scheduled for Q1 2024.
	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.	A list of reagents and supplies (including spares) to operate the MWTP is currently being refined. This list can be appended to the HLF CWMP, however, the MWTP has its own operating plan that incorporates necessary reagents, supplies and inspection and reporting schedule.	The MWTP operating plan has been completed by the design engineer and was submitted to YG June 14, 2023.
	viii. Triggers to implement the ERP	We will consider how to address this as we prepare the revised versions of the ERP and the HLF CWMP.	The updated HLF CWMP is scheduled for Q1 2024. The updated HLF ERP is scheduled for Q1 2024.
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		The specified regrading work around the ADR was completed. As described above for the updated CMP, the ground around the ADR will be inspected on a regular basis to ensure site activities do not change the grade so that any solution or runoff is channeled to the containment provided by the HLP.	Inspections are conducted on a daily/weekly basis depending on the status of operations.
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	The specified regrading work at the edge of containment was completed. As described above for the updated CMP, the edges of the containment area now have protocols that include routine inspection of these areas with response actions and durations.	Inspections are conducted on a daily/weekly basis depending on the status of operations.
c. Post inventory lists in appropriate locations for critical parts and supplies (e.g., pumping parts)		A critical parts and supplies list associated with the operation of the HLF and ADR is maintained within the Enterprise Resource Planning Software system utilized for all site procurement. The list includes minimum and maximum inventory amounts for all critical items. Once an item is removed from inventory, the ERP automatically determines if the remaining in inventory	The critical parts and supplies list is currently maintained by VGC.

Implementation Expectations	Implementation Plan Tasks	Scheduled Deliverables, Timeline and Milestones
	amount is within the minimum threshold and, if it is not, generates a reorder from the established vendor.	
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.	The level-actuated pumping system has been installed in the LDRS for the HLF.	NA
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	The updated HLF OMS will include the results of the evaluation of pump redundancy during an extended multi-pump failure.	The updated HLF OMS is scheduled for Q1 2024.
f. Evaluate motor control center (MCC) failure (i.e., the need for a back-up MCC, spare parts, etc.)	The updated HLF OMS will include the results of the evaluation of an MCC failure and the need for back-up.	The updated HLF OMS is scheduled for Q1 2024.
g. Have spare pump for EP on-site (e.g., complete pump and motor, or complete repair kit for pump and motor)	A critical parts and supplies list associated with the operation of the HLF and ADR is maintained within the Enterprise Resource Planning Software system utilized for all site procurement. The list includes minimum and maximum inventory amounts for all critical items. Once an item is removed from inventory, the ERP automatically determines if the remaining in inventory amount is within the minimum threshold and, if it is not, generates a reorder from the established vendor.	The critical parts and supplies list is currently maintained by VGC.
h. Recommendations resulting from annual inspections, performance reviews, and any other reports or studies required should be implemented in a timely manner.	An active on-site Action List with response times will be developed for the HLF/ADR operations based on annual inspections, performance reviews, and relevant reports/studies.	The initial Action List will be completed at the beginning of Q1 2024. It will be maintained on site by VGC and be reviewed and updated quarterly.
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.	The survey monuments were installed in November 2022 and are being routinely monitored.	NA
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	The survey monuments were installed in November 2022 and are being routinely monitored.	NA
b. No need for a second inclinometer in the embankment	The necessity for the second inclinometer will be discussed with the EoR as a component of the EoR report for the 2023 operating year.	Ongoing

From: John.Minder
To: Jeremy.Karkanis
Subject: RE: Submission Updates
Date: November 21, 2023 2:48:55 PM
Attachments: image001.png

Thanks, Jeremy.

Good to finally see this!

John

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: November 21, 2023 12:36 PM
To: John.Minder <John.Minder@yukon.ca>
Subject: FW: [EXT] RE: Submission Updates

Hi John,

For awareness, please see the attached Implementation Plan and submittal timeline from VGC for Eagle Gold Mine.

Thanks,

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Monday, November 20, 2023 7:19 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: [EXT] RE: Submission Updates

Hi Jeremy,

Sorry for the delay in getting back to you. November started off with a request to start the next year budget season early this year and it turns out that buying all of the Yukon assets from another company made the old copy and paste routine a bit difficult. My budget wish list is complete so now I see if Santa (or maybe the Victoria Gold Board) thinks I have been good. Hope all is well up there.

The attached document is the Implementation Plan which includes details on the planned submission schedule for the related plans and materials.

If you have any questions, comments or concerns, just let me know.

Cheers,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Tuesday, November 7, 2023 11:06 AM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: Submission Updates

Hello Hugh,

Hope your November has started well!

Just reaching out to check in on the status for a few of VGC's outstanding plan revision submissions. Would you be able to provide updates for the following items? Looking for planned submission dates if available:

1.) Cyanide Management Plan
2.) Water Management Plan
3.) Environmental Monitoring and Surveillance & Adaptive Management Plan
4.) Implementation Plan

Thanks, and let us know if you have any questions.

Regards,

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Erin.Dowd
To: "Bill Slater"
Subject: RE: [EXT] Fwd: 20230130_LTR _MRBtoVGC_HLF-CNimplementation.pdf
Date: January 10, 2024 12:41:00 PM
Attachments: 20240201_QML-0011_Amended January 2024.pdf

Hi Bill – the recent QML update for VGC includes a timeline for submissions in relation to the implementation plan (zoom to page 21). We have not received the Water Management Plan yet but expect to have it in hand shortly. The Mine Water Treatment Plant Operating Plan was submitted in June 2023, if you haven't already seen this I am happy to share.

Happy to chat if you have any questions

Erin Dowd
Major Mines Licensing
867-667-3432

From: Bill Slater <bslater@bslater.ca>
Sent: Tuesday, January 9, 2024 12:01 PM
To: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: [EXT] Fwd: 20230130_LTR _MRBtoVGC_HLF-CNimplementation.pdf

Hi Erin,

I forgot that Monica was away and sent this to her yesterday. Do you happen to have any information about the status of the January 2023 request in the attached letter?

Thanks, Bill

-------- Forwarded Message --------
Subject:20230130_LTR _MRBtoVGC_HLF-CNimplementation.pdf
Date: Mon, 8 Jan 2024 13:16:52 -0700
From: Bill Slater <bslater@bslater.ca>
To: Monica.Nordling <Monica.Nordling@yukon.ca>

Hi Monica,

I was just wondering if there had been any follow up from VGC on this request to implement recommendations from Piteau?

Thanks.

--
Bill Slater
p. 867-633-8452
c. 867-334-2807

QUARTZ MINING LICENSE QML-0011

This License is issued pursuant to section 135(2) of the Quartz Mining Act, S.Y. 2003, c.14. Previous versions of this License are hereby withdrawn and replaced.

Mining License No:	QML-0011
Issued to:	Victoria Gold Corp. Suite 1000, 1050 West Pender Street Vancouver, British Columbia V6E 3S7
Project Name:	Eagle Gold Mine
Location:	NTS 106D-04 & 105M-13; Latitude: 64° 1'12"N, Longitude: 135° 49'6"W Mayo Mining District
Effective Date:	March 24, 2016
Amendment Effective Date:	The date upon which the signature of the Director is affixed
Expiry Date:	September 20, 2040
Scope of Authorization:	Development, production, reclamation and closure of an open pit mine and gold extraction through heap leaching involving ore crushing, cyanide leaching and a carbon adsorption desorption and recovery system.

Dated this 2 day of January, 2024.

T. Powell

Director, Mineral Resources
Department of Energy, Mines and Resources

Two (2) Original Signed Copies

CONTENTS

PART I - GENERAL PROVISIONS

1.0 Definitions

1.1 In this License

"Act" means the *Quartz Mining Act*, S.Y. 2003, c.14;

"approved plan" means a plan listed in Schedule C and includes any terms and conditions specified by the Director as set out in the Schedule;

"borrow material" means rock, sand, gravel and other similar material obtained by excavation, other than pre-existing surface materials, that is to be used for the construction of roads and other engineered structures, works and installations;

"day" means a calendar day;

"Director" means the Director of the Mineral Resources Branch;

"Engineer" means a professional engineer as defined in, and licensed under, the *Engineering Profession Act*, R.S.Y. 2002, c.75;

"environmental management system" means the coordinated approach to managing day to day operations and environmental emergencies as described in the Hazardous Materials Management Plan, the Spill Contingency Plan, the Emergency Response and Health and Safety Plan, and the Cyanide Management Plan, as each is described in Schedule B and listed in Schedule C of this License;

"environmental protection plans" means the plans prepared by the Licensee to manage the environmental effects of the Undertakings as described in the following: the Waste Management Plan, the Environmental Monitoring and Surveillance and Reporting Plan, the Traffic Management Plan, the Wildlife Protection Plan, the Heritage Resource Protection Plan, the Spill Contingency Plan, the Hazardous Materials Management Plan, the Cyanide Management Plan, the Emergency Response and Health and Safety Plan, and the Sediment and Erosion Control Plan as each is described in Schedule B and listed in Schedule C of this License;

"Inspector" means an Inspector designated pursuant to the Act;

"License" means the Quartz Mining License QML-0011;

"Licensee" means the person to whom this License is issued;

"mine" includes:

(a) the open pits and all related mine infrastructure, as referenced in the Mine

Development and Operations Plan described in Schedule C;

(b) the waste rock and overburden storage facilities;

(c) any roads required for the Undertaking; and

(d) all supporting infrastructure such as fuel tanks, repair and maintenance shops, and explosive storage buildings, as each may be described in an environmental protection plan or operations plan;

"Minister" means the Minister of Energy, Mines and Resources;

"open pit" means the surface workings open to daylight that will be excavated to extract waste rock and ore as identified in the Mine Development and Operations Plan described in Schedule B;

"operations plans" means any and all of the following: the Mine Development and Operations Plan, the Heap Leach and Process Facilities Construction and Operation Plan, and the Road Development and Operations Plan, as each is described in Schedule B and listed in Schedule C of this License;

"ore" means rock containing minerals that are intended to be extracted in the heap leach facility;

"overburden" means soil or other unconsolidated material that lies above the rock surface;

"permanent closure" means the closure of the Undertaking as evidenced by the cessation of development and production activities authorized by this License for a period of time longer than two (2) consecutive months other than a temporary closure;

"Regulation" means the *Quartz Mining Land Use Regulation*, O.I.C. 2003/64;

"temporary closure" means the closure of the Undertaking as evidenced by the cessation of development and production activities authorized by this License for a period longer than two (2) consecutive months, unless a longer period is requested in writing, with reasons, by the Licensee no less than fourteen (14) days before the expiry of the two-month period and approved in writing by the Director before the expiry of the two month period;

"Undertaking" means all development, production, reclamation and closure authorized by this License related to the extraction of gold from the mineral claims identified in Schedule A;

1.2 Any term not defined in this License that is defined in the Act has the same meaning as in the Act.

1.3 The following schedules form part of this License:

(a) Schedule A - Listed Mineral Claims and Leases
(b) Schedule B - Plans to be Submitted for Review and Approval as Approved Plans
(c) Schedule C - Approved Plans and Authorized Activities
(d) Schedule D - Annual Reporting Requirements

2.0 Coming into Effect

2.1 The authorizations, obligations, and requirements set out in this License come into effect on the Effective Date.

3.0 Authorized Activities

3.1 The Licensee is authorized to carry out activities set out in Part 1 of Schedule C:
(a) on the mineral claims listed in Schedule A;
(b) in accordance with the terms and conditions set out in this License;
(c) once plans are approved and listed in Schedule C; and
(d) in accordance with the approved plans, and conditions set out in Schedule C.

3.2 The Licensee must provide written notice to the Director of the date it intends on commencing the Undertaking. The notice must be provided no less than thirty (30) days prior to commencing development.

4.0 Extensions of Time Limits

4.1 If the Licensee submits a written request to extend a time limit imposed by this License no less than five days before the expiry of the time limit in question, the Director or their delegate may extend the time limit. If extended, the new time limit will replace the time limit imposed in this Licence solely with respect to the written request.

5.0 Correspondence

5.1 Any written communication, notice or report required to be given must be provided to the persons identified below, by mail, registered mail, electronic mail or secure file transfer.

To the Licensee: Chief Operating Officer, Victoria Gold Corp.
Suite 1000, 1050 West Pender Street
Vancouver, British Columbia V6E 3S7
mayranto@vgcx.com

To the Director: Director, Mineral Resources
Department of Energy, Mines and Resources
P.O. Box 2703
Whitehorse, Yukon Y1A 2C6
Email to: Todd.Powell@yukon.ca
Email CC: emr-qml@yukon.ca

5.2 Either the Licensee or the Director may change its address for service while this License is in effect by notifying the other in writing.

5.3 All written communications, notices or reports will be considered to have been received by the Licensee or the Director, as the case may be, ten (10) days after the mailing thereof, or if personally delivered or sent by electronic or registered mail, or secure file transfer, on the day of delivery.

PART II - DEVELOPMENT AND IMPLEMENTATION OF PLANS

6.0 Approval and Amendment of Plans

6.1 When the Licensee is required to submit a plan under this License, the Licensee must:
(a) submit the plan in writing to the Director;
(b) ensure that the plan meets the requirements for that type of plan as directed by the Director or their delegate in writing; and
(c) not undertake any of the activities described in the plan until the plan is approved in writing by the Director and Schedule C amended accordingly, and only in accordance with any conditions in the approval.

6.2 If the Licensee wants to amend an approved plan, it must submit the proposed amendment to the Director as if the amendment was a plan under condition 6.1 of this License. If the Director approves the amendment, the Licensee agrees that the amendment and any terms and conditions set out by the Director in their approval will be considered to be an approved plan or a part of an existing approved plan, whichever is appropriate in the circumstance.

6.3 If at any time the Director directs in writing, and with reasons, that an approved plan be amended, the Licensee must prepare the required amendment and submit it to the Director as if it was a plan referred to condition 6.1 of this License.

6.4 All plans and reports submitted by the Licensee with respect to the design or construction of any engineered structures, works or installations related to the Undertaking must be under the stamp or seal of an Engineer.

7.0 Required Plans

7.1 The Licensee must submit to the Director the plans listed in Schedule B.

8.0 Implementation of Plans

8.1 Unless otherwise indicated by a term of this License or in writing by the Director, the Licensee must implement each approved plan as of the date each plan becomes an approved plan and once the Undertaking has commenced.

8.2 No activity may be carried out by the Licensee as part of the Undertaking unless authorized in Schedule C and all activity must be carried out in accordance with all

relevant approved plan(s).

8.3 Prior to commencing any construction of an engineered structure, the Licensee must submit to the Director detailed designs of the structure at least thirty (30) days prior to commencement of construction.

8.4 The detailed designs submitted in accordance with condition 8.3 must comply with the approved plan(s) listed in Schedule C.

8.5 Construction of all engineered structures must be completed in accordance with the detailed designs submitted to the Director in accordance with condition 8.3, or as part of an approved plan listed in Schedule C, with any minor modifications identified by an Engineer in accordance with condition 8.6.

8.6 Minor modifications from the detailed designs must be identified on the as-built drawings submitted pursuant to condition 15.6 and must be under the stamp or seal of an Engineer.

8.7 The Licensee must immediately implement all relevant components of the environmental management plans if a spill or release of dangerous or hazardous substances or materials occurs at the site.

8.8 The Licensee must undertake reclamation at the site in accordance with the approved reclamation and closure plan.

PART III - DEVELOPMENT AND MINE OPERATIONS

9.0 Development and Mine Operations

9.1 The Licensee must follow the procedures for determining the acid rock drainage or metal leaching potential of all material that may be stored on surface or used for construction purposes as set out in the approved plan listed in Schedule C titled "Geochemical characterization of Proposed Excavation Areas and Borrow Sources from the Eagle Gold Project, Yukon", dated May 2013, or any amendment to this plan once the amendment becomes an approved plan.

9.2 Waste rock used for construction or fill purposes must have a pH of at least 5.0, a NP:AP ratio of at least 3:1, and a total sulphide sulphur content of no greater than 0.3%.

9.3 The Licensee must not remove more than a cumulative total of 132 million tonnes of waste rock from the open pit during the term of this License.

9.4 The Licensee must not process ore at a rate exceeding 29,500 tonnes per day, based upon a 12-month average, during the term of this License.

9.5 The Licensee must not extract more than 92 million tonnes of ore from the mine over the term of this License.

9.6 The Licensee must not place more than 77 million tonnes of ore on the heap leach facility during the term of this License.

PART IV – RECLAMATION AND CLOSURE

10.0 Reclamation Planning and Implementation

10.1 The Licensee must submit to the Director an updated closure plan no later than October 1, 2016, and every two years thereafter, until the expiry date of the License.

10.2 The Licensee is required to implement all reclamation research programs and studies as identified in the approved closure plan.

10.3 Progressive reclamation is required, whether the Undertaking is in a state of closure or not, in areas that are no longer subject to development and production activities, and that will not be impacted by future development and production activities authorized in this License.

10.4 Progressive reclamation must be undertaken as described in the approved closure plan.

11.0 Temporary Closure

11.1 The Licensee must provide written notice to the Director of its intention to temporarily close the Undertaking at least thirty (30) days prior to initiating temporary closure.

11.2 Immediately upon ceasing all development and production activities for a period of time intended to last longer than two months, the Licensee must implement the approved closure plan as it relates to temporary closure.

11.3 The Director may, after giving the Licensee a reasonable opportunity to be heard on the matter, declare the Undertaking to be in temporary closure. Immediately upon receiving notice of the Director's declaration the Licensee must implement the approved closure plan as it relates to temporary closure.

11.4 No production or development activities may be undertaken during temporary closures unless otherwise authorized in writing by the Director.

11.5 Within thirty (30) days of entering into temporary closure the Licensee must provide to the Director:

(a) written notice indicating for which engineered structures, works or installations at the site it has already provided as-built drawings to the Director; and

(b) copies of as-built drawings for those engineered structures, works or installations for which no such drawings have been previously provided to the Director.

11.6 The Licensee must provide written notification to the Director at least thirty (30) days in advance of its intention to end temporary closure and resume development and production and must receive the written authorization from the Director before development and production recommences.

12.0 Permanent Closure

12.1 Permanent closure activities must commence no later than January 1, 2029, and be fully implemented in accordance with the approved closure plan before the expiry of this License.

12.2 The Licensee must provide written notice to the Director of its intention to permanently close the Undertaking at least ninety (90) days prior to the Licensee initiating any permanent closure activities, excluding progressive reclamation activities, and specify the date the Licensee intends to cease development and production activities.

12.3 Immediately upon ceasing all development and production activities with no intention of restarting those activities, the Licensee must implement the approved closure plan as it relates to permanent closure.

12.4 The Director may, after giving the Licensee a reasonable opportunity to be heard on the matter, declare the Undertaking to be in permanent closure. Immediately upon receiving notice of the Director's declaration the Licensee must implement the approved closure plan as it relates to permanent closure.

12.5 No production or development activities may be undertaken during permanent closure.

12.6 Unless otherwise stated in writing by the Director, if temporary closure lasts longer than five (5) continuous years, permanent closure will automatically be determined to have commenced and the Licensee must immediately implement the approved closure plan as it relates to permanent closure.

12.7 If the Licensee proposes to resume operations following the commencement of permanent closure, the Licensee must apply to the Director for approval to do so by providing notice to the Director of proposed operations to be resumed at least ninety (90) days in advance, and submitting the necessary plans and reports for approval in accordance with condition 6.1 of the License. The Director may approve the resumption of operations subject to any additional conditions.

12.8 If the Director issues the approval in condition 12.7, the Licensee may resume operations subject to the conditions in this License and any additional conditions set by the Director in such approval. If operations are resumed as such, the undertaking will no longer be in permanent closure.

PART V - FINANCIAL SECURITY

13.0 Financial Security

13.1 The Licensee must furnish and maintain security with the Minister in the amount of $103,741,940 (CDN) as outlined in the following schedule:
(a) $68,662,300 immediately on the amendment effective date;
(b) $35,079,640 no later than February 2, 2024.

13.2 Every closure plan update required in condition 10.1 must include a security estimate for potential liabilities associated with the permanent closure of the Undertaking and any activities proposed to be undertaken during any temporary closure periods.

13.3 If the Minister determines that additional security must be provided during the term of this License, the Licensee must furnish and maintain the additional amount of security.

13.4 The Licensee acknowledges that the written notice of the Minister referred to in condition 13.3 of this License will, upon issuance, amend condition 13.1 of this License with respect to the amount of security required to be furnished and maintained and the deadline for doing so. The notice will be considered a requirement of this License as of the date of the notice.

13.5 Unless otherwise determined by the Director, if the Licensee fails to furnish and maintain the security referred to in condition 13.1 or 13.3 of this License, the authorization provided in condition 3.1 of this License is suspended for all authorized activities that are not directly related to temporary closure or permanent closure, as the case may be, until the security is furnished as required.

13.6 If security is furnished in the form of a surety bond or irrevocable letter of credit, and the surety or institution issuing the bond or letter of credit provide notice to the Minister of its intention to terminate or not renew its obligation, then the Licensee must furnish another form of security acceptable to the Minister, in the full amount required by this license thirty (30) days before the date of termination or expiry, or within ninety (90) days after the date of notice, whichever is shorter, or the Licensee will be in default of the requirement to furnish and maintain security as required by this License and Yukon government may immediately demand payment from the surety or institution.

PART VI - AUDITS AND REPORTING

14.0 Environmental Audit

14.1 The Licensee must carry out an environmental audit, to be undertaken by an independent contractor acceptable to the Director, no later than October 1st in every second (2nd) year from the Effective Date, to determine if the environmental protection plans and regulatory controls set out in this License are sufficient to ensure that the environmental quality at, in and around the mine is being protected and that the environmental management systems and controls are functioning as intended.

14.2 The audit must review the management, operations and practices of the Licensee that are intended to ensure environmental protection during production and development. The audit must evaluate:

(a) compliance with the approved plans;
(b) the adequacy of the environmental protection plans to meet the objectives and intent of each plan;
(c) compliance with the internal environmental policies and procedures of the Licensee;

(d) the progress and success of reclamation and closure efforts completed to date;
(e) the reliability and integrity of information relating to environmental reporting and compliance; and
(f) any other requirements, including the scope and focus of the audit, as directed by the Director in writing.

14.3 Within sixty (60) days of an environmental audit being completed, the Licensee must provide the Director with a copy of the audit and a report detailing any remedial action to be undertaken by the Licensee in response to the audit (the "audit report").

14.4 The Licensee is required to submit a written statement detailing how and when each of the recommendations for remedial actions identified in the audit report referred to in condition 14.3 will be addressed. The written statement must accompany the audit report. The Licensee is required to implement the actions outlined in the written statement prior to December 31 of the subsequent year, or as directed by the Director in writing.

15.0 Reporting and Inspections

15.1 The environmental characterization report dated March 2015, and submitted by the Licensee with its application for this License, must be updated by the Licensee every three (3) years from the effective date of this License, unless the Director directs, in writing, that the report must be updated on a more frequent basis. Descriptions of the environmental conditions at the site must be accompanied by supporting data and analysis demonstrating a suitable understanding of site-specific environmental conditions.

15.2 The Licensee must ensure that an inspection of the physical stability of all engineered structures, works and installations located at the site is conducted by an independent engineer by October 1st of each year of the term of this License, including the heap leach facility, the heap leach facility embankment, the waste rock storage areas, the open pit and any diversion structures or dams and any other engineered structures or works associated with the Undertaking.

15.3 Within ninety (90) days of the inspection referred to in condition 15.2, the Licensee must submit to the Director and the Inspector a written report prepared by the engineer that conducted the annual inspection documenting the results of the inspection (the "inspection report"). This report must include:
(a) a summary of the stability, integrity and status of all of the inspected structures, works, and installations; and
(b) any recommendations for remedial actions made as a result of these investigations and evaluations.

15.4 The Licensee is required to submit to the Director and Inspector a written statement detailing how and when each of the recommendations for remedial actions identified in

the report referred to in condition 15.3 will be addressed. The written statement must accompany the inspection report. The Licensee is required to implement the actions outlined in the written statement prior to December 31 of the subsequent year, or as directed by the Director in writing.

15.5 Within sixty (60) days of completing construction of any engineered structures the Licensee must submit a report to the Director containing:
(a) as-built drawings of all structures, works and installations constructed;
(b) a summary of any quality assurance or quality control monitoring conducted by or for the Licensee in the course of constructing the structures, works and installations; and
(c) a variance report sealed by the design Engineer detailing any variances from the detailed design of the structure.

15.6 In the event of a cyanide release or exposure incident in Yukon related to the Project, the Proponent shall immediately notify the Director and Inspector, and make publicly available, the following information:
(a) notification to management, regulatory agencies, outside response providers and medical facilities of the cyanide emergency;
(b) notification to potentially affected communities of the cyanide related incident and any necessary response measures;
(c) any hospitalization or fatality related to cyanide exposure;
(d) the nature of release on or off the mine site requiring response, remediation, or reporting under applicable regulations; and
(e) the nature of release that exceeds applicable cyanide limits or that causes applicable limits to be exceeded.

15.7 The Licensee must provide quarterly monitoring reports on wildlife observations and incidents to the Director and the Inspector, these reports are to be submitted on the first working day in March, June, September, and December of each year.

15.8 On or before August 31 of each year of the term of this License, the Licensee must submit a financial forecast for the current calendar year, and a financial forecast for the next calendar year. The financial reports must be sufficiently detailed to provide an understanding of, and a forecast for, the following:
(a) revenue generated from the Undertaking;
(b) mineral sales or transfers;
(c) capital expenditures;
(d) costs associated with development, operation, and maintenance of the Undertaking;
(e) depreciation expectations; and
(f) expected inventory of minerals at the end of the calendar year.

15.9 On or before March 31 of each year of the term of this License, the Licensee must submit an annual report, in writing, in accordance with Schedule D and any written

direction of the Director, covering the period of January 1st to December 31st of the prior year.

SCHEDULE A - LISTED MINERAL CLAIMS AND LEASES

Grant Number	Claim Name	Grant Number	Claim Name
YA14986	DG 43	YA14987	DG 44
YA14988	DG 45	YA14989	DG 46
YA14991	DG 48	YA14992	DG 49
YA14993	DG 50	YA14994	DG 51
YA14995	DG 52	YA14996	DG 53
YA14997	DG 54	YA14998	DG 55
YA17734	Bob 6	YA17735	Bob 7
YA17930	Smoky 1	YA17931	Smoky 2
YA17932	Smoky 3	YA17933	Smoky 4
YA17934	Smoky 5	YA17935	Smoky 6
YA17936	Smoky 7	YA17937	Smoky 8
YA17938	Smoky 9	YA17939	Smoky 10
YA17956	Smoky 27	YA17958	Smoky 29
YA17959	Smoky 30	YA17968	Smoky 39
YA17969	Smoky 40	YA17973	Smoky 48
YA17977	Smoky 56	YA17983	Smoky 66
YA17984	Smoky 67	YA17985	Smoky 68
YA30072	Smoky 44	YA30073	Smoky 45
YA30074	Smoky 46	YA30075	Smoky 47
YA30076	Smoky 51	YA30077	Smoky 52
YA30078	Smoky 53	YA30079	Smoky 54
YA30080	Smoky 62	YA30081	Smoky 63
YA30082	Smoky 64	YA30083	Smoky 65
YA30084	Smoky 74	YA30086	Smoky 76
YA43044	DG 82	YA43045	DG 83
YA43061	DG 100	YA43062	DG 101
YA43063	DG 102	YA43064	DG 103
YA43120	Smoky 83	YA43121	Smoky 84
YA43122	Smoky 85	YA43128	Smoky 91
YA43129	Smoky 92	YA43131	Smoky 94
YA43132	Smoky 95	YA43133	Smoky 96
YA43134	Smoky 97	YA43135	Smoky 98
YA43144	Smoky 107	YA43145	Smoky 108
YB18935	WEST 168	YB18937	WEST 170
YB18939	WEST 172	YB18949	WEST 182
YB18951	WEST 184	YB64630	Roni 1
YB64631	Roni 2	YB64632	Roni 3
YB64633	Roni 4	YB64634	Roni 5
YB64636	Roni 7	YB64638	Roni 9
YB64639	Roni 10	YB64640	Roni 11
YB64641	Roni 12	YC02852	Tin Dome 9

Grant Number	Claim Name	Grant Number	Claim Name
YC02853	Tin Dome 10	YC02854	Tin Dome 11
YC02855	Tin Dome 12	YC11275	Dub 201
YC11254	Dub 180	YC11277	Dub 203
YC11276	Dub 202	YC11280	Dub 206
YC11279	Dub 205	YC11282	Dub 208
YC11281	Dub 207	YC11332	Dub 258
YC11331	Dub 257	YC11364	Dub 290
YC11338	Dub 264	YC38832	Dub 1536
YC11365	Dub 291	YC38835	Dub 1539
YC38833	Dub 1537	YC38839	Dub 1543
YC38837	Dub 1541	YE55726	Smoky Fr 55
YC38841	Dub 1545	YF33531	VBS 401
YE55727	Dub Fr. 1620	YF33878	VBS 278
YF33552	VBS 422	YF33902	VBS 302
YF33879	VBS 279	YF33967	VBS 367
YF33903	VBS 303	YF33987	VBS 387
YF33969	VBS 369	YF33990	VBS 390
YF33989	VBS 389	YF33997	VBS 397
YF33996	VBS 396	YF33999	VBS 399
YF33998	VBS 398		

SCHEDULE B - PLANS TO BE SUBMITTED FOR APPROVAL AS APPROVED PLANS

Construction, Development and Operations Plans

Emergency Response and Health and Safety Plan - A plan that provides detailed procedures and responsibilities for response to emergency situations that may be encountered.

Mine Development and Operations Plan - A plan that details the activities for the construction, operation, maintenance and monitoring of the mine.

Road Development and Operations Plan - A plan that details the construction and operations of roads developed for the purposes of the Undertaking.

Waste Rock Management Plan - A plan that provides a description of the activities for the segregation of the various overburden and waste rock streams, including how the categories of waste rock will be managed throughout the mine life, details of the construction, operation and monitoring of the various waste rock and overburden storage facilities.

Cyanide Management Plan - A plan that provides details on the transportation, handling, storage and use of cyanide and any mitigation to limit exposure and prevent release to the environment including a cyanide specific monitoring program.

Heap Leach and Process Facilities Construction and Operations Plan - A plan that describes the construction, operation and monitoring of the process facilities, and the organizational roles and responsibilities, facility description, operation, maintenance and surveillance measures and any contingency measures for the heap leach pad and related infrastructure.

Environmental Protection and Environmental Management Plans

Adaptive Management Plan – A plan that provides detailed descriptions of procedures and actions that will be employed should negative effects on the environment be observed. The plan should demonstrate that actions can be taken prior to causing unacceptable effects.

Environmental Monitoring, Surveillance and Reporting Plan - A plan that describes methods and techniques for collecting and reporting monitoring information regarding conditions of engineered structures and environmental conditions at the Undertaking, as well as quantitative thresholds which trigger the implementation of adaptive management strategies.

Hazardous Materials Management Plan - A plan provides details of the storage and handling of various hazardous chemicals utilized in the Undertaking.

Sediment and Erosion Control Plan - A plan that describes methods and techniques for protecting undisturbed lands, minimizing footprints and reducing erosion of soils due to land disturbance and weathering by wind and water.

Spill Contingency Plan - A plan that describes the measures designed to minimize the potential impact to the environment following a fuel or chemical spill.

Waste Management Plan - A plan that describes the mitigations and methods used to manage solid and liquid wastes and special wastes to ensure protection of the environment and human health.

Wildlife Protection Plan - A plan that describes the mitigation measures or practices pertaining to wildlife attractants, vehicle use, habitat management, wildlife harassment and wildlife health.

Socio-Economic Mitigation Plans

Heritage Resource Protection Plan - A plan that describes measures to identify and protect historic sites, historic objects, and works of archaeological, paleontological, pre-historic, historic, scientific or aesthetic value.

Traffic Management Plan - A plan that describes the mitigation measures or practices pertaining to the control of vehicle access, whether private or public vehicles, on the various roads included in the Undertaking.

SCHEDULE C - APPROVED PLANS AND AUTHORIZED ACTIVITIES

Part 1: Authorized Activities

The Licensee is authorized to carry out the following activities as set out below as directed by the approved plans set out in Part 2. For greater certainty, if there is no approved plan that addresses the activity to be carried out, the activity cannot be carried out until a plan is approved for the conduct of the activity. For clarity, this authorization does not limit the application of any other applicable law.

1. Access

The Licensee is authorized to access the Undertaking via gravel road to the site.

2. Camp

The Licensee is authorized to operate a camp for up to 400 people during construction, and 250 people during operations consisting of bunkhouse accommodation, mine dry, cooking facilities, water and sewage facilities, heating, and recreational facilities.

3. Industrial Complex

The Licensee is authorized to operate and maintain an industrial complex in support of the undertaking, including a transmission line and substation, explosives and magazine storage area and fuel containment facility.

4. Metal Recovery and Process Facilities and Ancillary Infrastructure

The Licensee is authorized to operate and maintain a metal recovery and process facility consisting of equipment for crushing and conveying ore, ore stockpiles, cyanide leaching, carbon adsorption desorption and recovery, ore storage and transportation and ancillary infrastructure.

5. Open Pit Mining Operations

The Licensee is authorized to carry out production using conventional open pit truck, shovel and loader operations, including rotary drills, blasting and ancillary services.

6. Heap Leach Operations

The Licensee is authorized to construct, operate and maintain a valley fill heap leach including an embankment, in-heap pond, composite liner systems, solution recovery wells, solution collection, distribution and storage, a leak detection and recovery system and events ponds.

7. Waste Rock, Frozen Material, and Overburden Management

Subject to part III of the license the Licensee is authorized to deposit waste rock from the open pit in the Platinum Gulch and Eagle Pup Waste Rock Storage Areas. The Licensee is authorized to deposit overburden from the Undertaking in the Ice Rich Overburden Storage Area, and Reclamation Soil Stockpile.

Part 2: Approved Plans

The following plans are approved, subject to the listed conditions.

1.0 Construction, Development and Operations Plans

1.1 **Emergency Response**

- **"Heap Leach and Process Facilities Emergency Response Plan, Version 2019-01"** dated May 2019 and prepared by the Licensee.

1.2 **Mine Development and Operations**

- **"Mine Development, Operations and Material Management Plan, Version 2017-01"** dated July 2017 and prepared by the Licensee.
- **"Explosives Management Plan, Version 2017-01"** dated July 2017 and prepared by the Licensee.

1.3 **Cyanide Management**

- **"Cyanide Management Plan, Version 2019-02"** dated April 2019 and prepared by the Licensee.

Subject to the following condition:

(a) Cyanide transportation must be provided by a certified cyanide transporter compliant with the International Cyanide Code.

1.4 **Road Construction**

- **"Road Construction Plan, Version 2020-02"** dated April 2022 and prepared by the Licensee.
- **"Geochemical Characterization of Proposed Excavation Areas and Borrow Sources from the Eagle Gold Project, Yukon"** dated May 2013 and prepared by SRK Consulting.

1.5 **Waste Rock and Overburden Management**

- **"Waste Rock and Overburden Facility Management Plan, Version 2023-01"** dated January 2023 and prepared by the Licensee.

Subject to the following conditions:

(a) No additional material is to be placed in Stockpile A, adjacent to the Heap Leach Pad along the west slope;
(b) the only activity permitted on Stockpile A is removal of material for construction or reclamation purposes and stability works;
(c) Stockpile A must be included in the inspection of the physical stability as required by condition 15.2 of this license;

(d) Stockpile A must be monitored seasonally via methods outlined in the Environmental Monitoring and Surveillance and Adaptive Management Plan.

- **"Frozen Materials Management Plan, Version 2017-01"** dated July 2017 and prepared by the Licensee.
- **"Geochemical Characterization of Proposed Excavation Areas and Borrow Sources from the Eagle Gold Project, Yukon"** dated May 2013 and prepared by SRK Consulting.
- **"Eagle Gold Project, Report of Metallurgical Test Work"** dated December 2013 and prepared by Kappes, Cassiday & Associates.

Subject to the following conditions:

(a) Prior to utilizing excavated rock for construction purposes, a Quality Assurance and Quality Control Plan and field screening report for geochemical characterization of that rock must be submitted to the Director for review; and

(b) The Licensee shall conduct further investigations on less durable rock considered for use in the rock drains beneath the waste rock storage area before using it as such. Should the rock be incapable of maintaining long-term drainage due to mechanical degradation, the Licensee shall ensure additional measures are implemented to protect against reduced flow volumes and increased pore water pressure.

1.6 **Heap Leach and Process Facilities Construction and Operations**

- **"Heap Leach Process and Facilities Plan, 2017-01"** dated December 2017 and prepared by the Licensee.
- **"Heap Leach Detailed Design Report"** Dated November 16, 2017, and prepared by BGC Engineering Inc.
- **"Heap Leach Facility Foundation Improvement Plan, 2017-01"** dated June 2017 and prepared by the Licensee.
- **"Technical Specifications – Heap Leach Facility"** dated October 2017 and prepared by BGC Engineering Inc.
- **"Cyanide Destruction Column Studies Report"** dated March 2014 and prepared by Tetra Tech.
- **"Heap Leach Facility Contingency Water Management Plan, 2020-01"** dated January 2020 and prepared by the Licensee.
- **"Heap Leach Facility Operation, Maintenance and Surveillance Manual, Version 2020-01"** dated January 2020 and prepared by the Licensee.
- **"Heap Leach Facility, 2023 Annual Water Balance Modelling Report"** dated March 2023 and prepared by Forte Dynamics Inc.

Subject to the following conditions:

(a) VGC is required to submit revised monitoring and management plans in relation to the development, operations and maintenance of the Heap Leach Facility. The

following plans are to be submitted for review and approval in accordance with Condition 6.3 of the License:

i. A Water Management Plan to be submitted no later than December 31, 2023;
ii. A Heap Leach Facility Contingency Water Management Plan to be submitted no later than March 31, 2024;
iii. An Environmental Monitoring, Surveillance, Monitoring, Reporting and Adaptive Management Plan to be submitted no later than March 31, 2024;
iv. A Cyanide Management Plan to be submitted no later than March 31, 2024; and
v. A Heap Leach Facility Emergency Response Plan to be submitted no later than March 31, 2024.

(b) The plans required above must meet the requirements outlined in the January 30, 2023 letter entitled “Eagle Gold Mine site – HLF Operations and Cyanide Management Desktop Review” from the Mineral Resources Branch to Victoria Gold (Yukon) Corp.

2.0 Environmental Protection and Environmental Management Plans

2.1 Environmental Monitoring and Reporting

- **“Environmental Monitoring, Surveillance and Adaptive Management Plan, Version 2020-01”** dated February 2020 and prepared by the Licensee.

2.2 Sediment and Erosion Control

- "**Water Management Plan, 2020-01"** dated January 2020 and prepared by the Licensee.

2.3 Hazardous Materials Management

- Incorporated into Waste Management

2.4 Waste Management

- **"Solid Waste and Hazardous Materials Management Plan, Version 2017- 02"** dated July 2017 and prepared by the Licensee.
- **“Mine Water Treatment Solids Management Plan, Version 2014-01”** dated July 2014 and prepared by Engineering Analytics Inc.

2.5 Spill Contingency

- **“Spill Response Plan, Version 2022-01"** dated November 2022 and prepared by the Licensee.

2.6 Wildlife Protection

- **"Wildlife Protection Plan, Version 2017-01**" dated July 2017 and prepared by the Licensee.

3.0 Socio-Economic Mitigation Plans

3.1 **Dust Control**

- **"Dust Control Plan, Version 2017-02"** dated July 2017 and prepared by the Licensee.

3.2 **Heritage Resource Protection**

- **"Heritage Resource Protection Plan, Version 2017-01"** dated July 2017 and prepared by the Licensee.

3.3 **Traffic Management**

- **"Traffic Management Plan, Version 2017-01"** dated July 2017 and prepared by the Licensee.

Subject to the following conditions:

(a) The use and management of the South McQuesten Road and the Haggart Creek Road must be regularly monitored.

4.0 Reclamation and Closure

4.1 **Reclamation and Closure**

- **"Reclamation and Closure Plan, Version 2022-01"** dated October 2022 and prepared by the Licensee.

Subject to the following conditions:

(a) The subsequent updated reclamation and closure plan required pursuant to condition 10.1 of the License, must include the following:
   i. specific and measurable closure criteria for each mine component, including the following elements:
      1. justification for the chosen criteria, including demonstration of consultation with the First Nation of Na-cho Nyäk Dun and government regulators;
      2. addition of the fundamental objective of 'Health and Safety' and affiliated closure objectives, measures, and criteria for the "Water Retention and Water Conveyance Structures" mine component; and
      3. definition for the term "visual monitoring"
   ii. the results of a failure modes and effects analysis for the closure of the waste dumps, heap leach facility, Lower Dublin South Pond, and cover structures at minimum
   iii. consideration of higher physical stability objectives for waste management facilities including:

1. review of the hazard classification and affiliated factors of safety for waste dumps; and
2. review of the design rigor and review level required for the waste management facilities

iv. consideration of higher hydrologic design events including impacts on the design of closure water conveyance and retention structures, and downstream receiving components.

v. integration of the reclamation and closure research program schedule within the overall mine closure schedule, including the status of in-progress and potential progressive reclamation projects

vi. updates to the constructed wetland treatment system closure research program including:
    1. consideration of a range of inflows below and above the design event to analyze impacts on treatment performance; and
    2. advancement of the research program schedule to demonstrate progression into increasingly complex trials representative of the conditions present during closure.

vii. demonstration of the adequacy of Caro's acid method for cyanide destruction for the conditions present at site through the development of research programs for physical bench scale and pilot scale testing.

viii. updates to the cover system designs for waste management facilities including:
    1. consideration of consecutive extreme precipitation 'wet-years' to analyze impacts on net percolation;
    2. consideration of climate change to analyze impacts on snowmelt infiltration;
    3. review of the frost susceptibility of the cover source material and the potential risk to cover system integrity; and
    4. advancement of cover modelling to include vegetation

SCHEDULE D - ANNUAL REPORTING REQUIREMENTS

The Annual Report must include:

Site Activities

(a) a summary of construction activities associated with the Undertaking;
(b) a summary of mining activities;
(c) a summary of proposed development and production for the coming year;
(d) a map showing the status of all structures, works, and installations associated with the Undertaking;
(e) the total amount of ore and waste removed from the open pit for the year and for the life of the Undertaking;
(f) the total amount of gold produced and removed from the undertaking;
(g) the total amount of waste rock removed from the Undertaking and deposited into each deposit location;
(h) the total amount of waste rock stored in each waste rock storage facility;
(i) details respecting any action taken as a result of the recommendations made by the engineer in relation to the inspection referred to in 15.2 of QML-0011;
(j) a summary of any update to estimates of ore reserves and the life of the mine, including reserve category, tonnage and grade;
(k) the total amount and the average grade of ore stockpiled;
(l) the remaining reserve life of the mine;
(m) results and interpretation from all QA/QC programs for the site;
(n) a summary of heap leach facility construction including:
    i. the total amount and the average head grade of ore placed on the heap leach pad for the year and the life of the Undertaking;
    ii. the mass/volume and end of year configuration of ore lifts placed in the heap leach facility with the identification of any final benches or slopes achieved during the year;
    iii. the records of ore properties for ore placed on the heap and records of any of agglomeration conducted; and
    iv. report on metallurgical performance of the heap leach facility

Environmental Monitoring

(a) a summary of the programs undertaken for environmental monitoring and surveillance as outlined in the *Environmental Monitoring, Surveillance and Adaptive Management Plan* and the *Wildlife Protection Plan*, including an analysis of these data and any action taken or adaptive management strategies implemented to monitor or address any changes in environmental performance;
(b) a summary of operating procedures for cyanide-related tasks and their implementation, including the review of proposed process and operational changes and modifications deemed necessary for potential impacts on personnel health and safety and the incorporation of personnel protection measures;

(c) a summary of all safety measures taken (signs, etc.) to identify the presences of cyanide to all personnel;
(d) a summary of all tests and calibration records for HCN monitoring equipment;
(e) a summary of the results of the waste rock quality assurance/quality control monitoring for the past year;
(f) a summary of invasive plants that have been identified on site and measures taken to control or remove invasive plants;
(g) a summary of ambient air quality monitoring and modelling (which includes emissions related to the gold recovery process) and mitigation measures taken;
(h) a summary of spills and accidents that occurred at the site and measures taken respond to any spills or accidents;
(i) a summary of the level of traffic, access control issues, wildlife incidents and other accidents, and any upgrade or maintenance work planned for the upcoming year;
(j) a summary of sound-levels associated with blasting activities;
(k) a summary of any site improvements undertaken to address sediment and erosion control;
(l) a summary and interpretation of humidity cell or other geochemical tests undertaken on materials on site, including:
    i. geochemical characterization of the expanded open pit, including kinetic testing to predict metal leaching potential;
    ii. assumptions and conclusions of geochemical predictions and the effectiveness of mitigation measures;
    iii. the segregation of waste rock based on metal leaching potential; and
    iv. results of long-term column tests to study the effects to stability and permeability of the heap leach facility;
(m) a summary of cyanide release or exposure that occurred at the Undertaking, including:
    i. any hospitalization or fatality related to cyanide;
    ii. the nature of release and the response or remediation required; and
    iii. any exceedances to cyanide limits in permits or authorizations.

Physical Monitoring

(a) a summary of any heap leach, waste rock, or open pit stability incidents;
(b) a summary of data collected to date as part of the Physical Monitoring Program;
(c) details of results, including data collected, for the Physical Monitoring Program;
(d) a summary report on the performance of engineered structures in service during the reporting year including:
    i. any operational deficiencies or failures to achieve operational requirements;
    ii. records of any leakage into the Leak Detection and Recovery System of the Heap Leach Facility;
    iii. a detailed record of any major maintenance work carried out;
    iv. plans to conduct major maintenance work for the following year; and
    v. status report on any backup equipment and supplies for emergency management of the heap leach facility including records of exercising such equipment.

Reclamation and Closure

(a) any temporary closure or permanent closure that has occurred during the year;
(b) a summary of activities related to care and maintenance of the Undertaking, including any temporary closure activities if applicable;
(c) a summary of progressive and ongoing reclamation activities;
(d) a summary of proposed development and production and reclamation activities for the coming year;
(e) a summary of reclamation research and results; and
(f) a hazardous materials inventory and description of hazardous materials storage.

Socio-economic Monitoring

(a) a summary of action taken by the Licensee with respect to development and implementation of a joint committee that will confirm socio-economic indicators, reporting and responding to monitoring results.

Greenhouse Gas Emissions and Climate Change

This section must provide a summary of greenhouse gas emissions and climate change impacts, including, the following:

(a) provide the following information on fuel use throughout the reporting year. Where it is reasonable to do so, please distinguish between fuel volumes used for mining and production operations, mine exploration activities, and closure activities;

	Volume delivered to site (in Litres)	**Renewable Fuel Content (%)**	**Development/ production activities (in Litres)**	**Mine exploration activities (in Litres)**	**Closure activities (in Litres)**
Heating Fuel (oil)					
Heating Fuel (propane)					
Heating Fuel (other)					
Aviation Fuel (Jet A)					
Aviation Fuel (Jet B)					
On-site transportation (diesel)					
On-site transportation (gasoline)					

	Volume delivered to site (in Litres)	Renewable Fuel Content (%)	Development/ production activities (in Litres)	Mine exploration activities (in Litres)	Closure activities (in Litres)
Off-road transportation (diesel)[1]					
Off-road transportation (gasoline)					
Off-site transportation (diesel)[2]					
Off-site transportation (gasoline)					
Electricity production (diesel)					

(b) provide the following information for electricity purchased or generated on site;

Source	kWh Energy
Purchased from grid	
Produced using diesel	
Produced using LNG	
Produced using renewable resources (e.g. solar, wind)	

(c) report the hectares of land clearing undertaken throughout the reporting year attributed to mine exploration, production, and closure;

(d) describe activities undertaken through the reporting year to reduce project emissions:
   i. describe future options to reduce greenhouse gas emissions; and
   ii. describe how you will evaluate options for greenhouse gas reductions;

(e) provide projections for greenhouse gas emissions in CO_2 equivalent for the next 10-year period;

(f) identify any federal or territorial incentive programs that have been accessed to assist in the reductions of emissions; and

(g) identify any financial or other support provided by the Licensee to help community or territorial efforts to reduce emissions.

[1] E.g., exploration activities.

[2] E.g., personnel/supplies transport to and from site; concentrate/product transport on Yukon roadways.

From: Erin.Dowd
To: Jeremy.Karkanis
Subject: FW: Cyanide Implementation - documents for webpage
Date: April 17, 2024 11:14:40 AM
Attachments: image001.png

Official nod

Erin Dowd
Major Mines Licensing
867-667-3432

From: Kelly.Constable <Kelly.Constable@yukon.ca>
Sent: Wednesday, April 17, 2024 9:39 AM
To: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: Cyanide Implementation - documents for webpage

Hi Erin,

Please proceed with posting these online.

Thank you,
Kelly

Kelly Constable, Director, Mineral Resources
C 867-332-5108

From: Erin.Dowd <Erin.Dowd@yukon.ca>
Sent: Tuesday, April 16, 2024 2:17 PM
To: Kelly.Constable <Kelly.Constable@yukon.ca>
Subject: Cyanide Implementation - documents for webpage

Hi Kelly – here's what I'm proposing to be posted on the Eagle Gold webpage to provide context for why we're getting all these new plans and asking people for their time/resources to review.

July 2022 - Full report from Piteau
January 2023 – YG Implementation expectation letter (cc'd to FNNND)
November 2023 – VGC Implementation Plan

Let me know if you have any issues with posting the documents, or if you're a-ok with proceeding.

Erin Dowd
Manager, Major Mines Licensing
Energy, Mines & Resources | Mineral Resources Branch
C 867-667-3432 | Yukon.ca

From: Kelly.Constable
To: Mark Ayranto
Cc: Erin.Dowd
Subject: FYI Cyanide Implementation - documents for YG webpage
Date: April 17, 2024 11 58:37 AM
Attachments: 220731_Piteau Full Report to TG-Eagle Gold Review FINAL.pdf
20230130_LTR_ MRBtoVGC_HLF-CNimplementation.pdf
20231120 Implementation Plan.pdf
image001.png

Good afternoon, Mark,

I hope you're having a good week. I'd l ke to notify you that we are updating our web page(s) associated with major mines, and we will be including the attached cyanide implementation documents on the Eagle Gold licensing documents page.

Thank you,
Kelly

Kelly Constable
Director, Mineral Resources
Energy, Mines and Resources | Mineral Resources Branch
C 867-332-5108 | Yukon.ca

From: Erin.Dowd
To: Hugh Coyle
Cc: Jeremy.Karkanis
Subject: RE: End of March Check-in
Date: May 24, 2024 8:58:55 AM
Attachments: image001.png
image002.png

Thanks for this Hugh – we will review and reach out if we have any questions or require additional information.

Have a great weekend

Erin Dowd
Major Mines Licensing
867-667-3432

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Thursday, May 23, 2024 6:03 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Hi Jeremy,

Please find attached the Project Execution Plan.

Regards,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Tuesday, May 21, 2024 3:03 PM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Hello again Hugh,

I'm afraid I am becoming quite a thorn in your side these days. I email today with another list of items to check in on.

- First, a quick reminder that VGC's Project Execution Plan for implementation of the RCP is due this Friday, May 24.

Is this document on track for delivery this Friday?

- Looking to the (not so distant) future, we are in an environmental audit year. Reminder that an audit must be conducted by October 1st.
  Does VGC have plans for the scope of this year's audit?

- Last, I'd like to check in again on the remaining cyanide review deliverables. From your emails, I gather we should see the EMSAMP next?
  I think that leaves the HLF OMS Manual and HLF Contingency Water Management Plan. Are you able to provide an update on the estimated time of delivery for each of these deliverables?

Appreciate this, Hugh - the amount of work on your plate is not lost on me.

Regards,

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Saturday, May 11, 2024 6:01 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Hi Jeremy,

Please find attached the updated Cyanide Management Plan.

Regards,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Wednesday, May 8, 2024 10:39 AM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Hi Hugh,

Thanks for your email and for this update.

At this time, I don't think I have any comments that are directly relevant to the remaining plans under development.
Our internal review is still ongoing, and we have yet to consult with FNNND so its possible we may have "cross-plan" comments in the future, but its probably not likely that we'll have anything prepared before you submit the remaining plans. Sorry about that!

Let me know if there's anything else we can help with in the meantime.

Thanks,

Jeremy

Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Monday, May 6, 2024 5:48 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Hi Jeremy,

Apologies for the delay in response. The Cyanide Management Plan will be with you by the end of the week.

I have had a document control issue with the EMSMAP and I am still trying to determine the impact to that timeline. Once the CMP is completed I will be able to turn my attention back to that and can provide a better update.

As the reviews have led to linkages between many of our plans, are there any preliminary comments on the other submissions that would help inform areas in the pending updates that may need to be reconsidered?

Cheers,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Monday, May 6, 2024 8:37 AM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Morning Hugh,

Hope you are well.

Sending another quick email to check in on VGC's outstanding plan submissions. Can you please provide us with an update for when we might see these items?

Thanks,

Jeremy

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Jeremy.Karkanis
Sent: Monday, April 15, 2024 8:42 AM
To: 'Hugh Coyle' <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Good morning Hugh,

Just sending one more quick check-in to gauge where VGC is at with the remaining submissions discussed below (EMSAMP, CMP, HLF CWMP).
Are you able to provide an update for these items?

Thanks,

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Jeremy.Karkanis
Sent: Friday, April 5, 2024 7:48 AM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Morning Hugh,

Thanks for the heads up on these submissions.
The Annual Report, HLF Emergency Response Plan, and Water Management Plan are all successfully received on our end.

Looking forward to the remainder of VGC's plan submissions in the near future.

Thanks,

Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Thursday, April 4, 2024 5:39 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Hi Jeremy,

I am not sure if you receive notifications when new documents are uploaded to the OneDrive folder but our Annual Report, the HLF Emergency Response Plan and the Water Management Plan have been uploaded.

I have also shared a copy of the Water Management Plan with the FNNND as they were also keen to review and provide comments. That review may result in additional revision but I will keep you posted.

Cheers,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Tuesday, March 26, 2024 9:10 AM
To: Hugh Coyle <hcoyle@vgcx.com>
Cc: Erin.Dowd <Erin.Dowd@yukon.ca>
Subject: RE: End of March Check-in

Thank you for the update, Hugh.

We'll keep an eye out for the Water Management and HLF Emergency Response plans this week and the other submissions thereafter.

Here is a OneDrive link you can use to submit files: 72(1)(b)(vi)
I believe I've sorted access and sharing permissions for you.
Sometimes OneDrive plays tricks on me though, so please do let me know if things aren't working as intended.

Appreciate your efforts putting this all together!

Regards,

Jeremy

Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Hugh Coyle <hcoyle@vgcx.com>
Sent: Monday, March 25, 2024 5:36 PM
To: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Subject: RE: End of March Check-in

Hi Jeremy,

March does have a habit of coming upon us far too quickly particularly with the seemingly never ending Reclamation and Closure Plans these days – the days of a slow winter to catch up on things seem to be distant, but fond, memory.

There is perhaps two or three appendices for the annual report that I am fighting consultants over but other than perhaps those the report will be in on the 31st. On that note, are you able to send me a link to upload files to as our Sharepoint can be a little prickly sometimes?

The Water Management Plan will be with you this week. The HLF Emergency Response Plan should

also be with you this week. The EMSMAP is in final review but may slip by a few days with the focus shifting to last minute consultant reports for the annual report. The CMP audit is in final draft and was hung up on some additional data requests by the auditors and I am hoping to take a review of their audit prior to finalizing the CMP update so that is behind schedule by a week or two. The HLF Contingency Water Management Plan is the one lagging at the moment – I will turn to that as soon as I have the others updated.

All part of the fun!

Cheers,

Hugh

Hugh Coyle | VP Environment | T:604-696-6600 | C:604-349-6469 | F:604-682-5232

From: Jeremy.Karkanis <Jeremy.Karkanis@yukon.ca>
Sent: Monday, March 25, 2024 1:49 PM
To: Hugh Coyle <hcoyle@vgcx.com>
Subject: End of March Check-in

Hi Hugh,

End of March is quickly approaching so I'm just sending this email to check in.
VGC has a few deliverables with deadlines on March 31 per the QML. Namely the annual report and several plans affiliated with the cyanide management review.
I recognize this is not a small number of deliverables - is everything on track for submission on the 31st?

Hope you're not too bogged down with it all.

Regards,

Jeremy

Yukon
Jeremy Karkanis
Mining Technologist
Energy, Mines & Resources
C: 867-332-0011

From: Erin.Dowd
To: Kelly.Constable
Subject: VGC update for meeting
Date: May 27, 2024 8:00:00 AM
Attachments: image001.png

Heap leach review implementation items:

- We are waiting for 3 plans
  - Environmental monitoring, surveillance, reporting and adaptive management plan (EMSRAMP)
  - Heap leach facility operations maintenance and surveillance manual
  - Heap leach facility water management plan
- We have not requested input from FNNND yet. Once all the plans are received we will be reaching out to consult and seek input from their technical team

Environmental audit

- It's an environmental audit year for them
- We have not approved a scope yet – I am thinking we will ask to have a more careful review of the dust abatement mitigations

Reclamation and Closure Plan

- We received their Project Execution Plan on Friday (YAY)
- The board has not made a determination, but I hear it will be out very soon
- The next iteration of their plan is due in October if the Board does not accept our deferral recommendation

Dust

- CMI and WCB concerns on dust management from the environmental and worker health viewpoints
- CMI has issued a direction to have a building erected in September, we have not heard any concerns raised on this
- 72(1)(b)(i) [redacted]

Engineering investigation

- 72(1)(b)(i) [redacted]

Question for VGC

- Timing of PSE response and how this relates to remaining mine life
- Also very curious on their work on the Brewery Creek Project

Yukon
Erin Dowd
Manager, Major Mines Licensing
Energy, Mines & Resources | Mineral Resources Branch
C 867-667-3432 | Yukon.ca