



**MEETING SUMMARY
TECHNICAL REVIEW TEAM – GEOCHEMISTRY SUBCOMMITTEE
GRASSY MOUNTAIN GOLD MINE PROJECT**

**January 14, 2020
8:30 am (Pacific) Time
Teleconference/Public Access at the Portland State Office Building**

Attendance:

Committee Members

- Sarah Lewis, Oregon Department of Geology and Mineral Industries (DOGAMI)
- Ian Madin, DOGAMI
- Bob Brinkmann, DOGAMI
- Randy Jones, Department of Environmental Quality (DEQ)
- Scott Yankey, DEQ
- John Dadoly, DEQ
- Rick Hill, DEQ
- Ron Doughten, DEQ
- Trevor Watson, Oregon Department of Fish and Wildlife (ODFW)
- Phil Marcy, Oregon Water Resources Department (WRD)
- Andrea Bowen, Bureau of Land Management (BLM)
- John Westfall, BLM
- Steve Flock, BLM

Others in Attendance

- Adam Bonin, Cardno
- Adele Pozzuto, Cardno
- Andrew Nicholson, Integral Consulting Inc. (Integral)
- Jarrod Gasper, Integral
- David Livermore, Integral
- Nancy Wolverson, Calico Resources
- Christo Theodossiou, Paramount Gold Nevada
- Sammy Castonguay, Friends of Owyhee

Meeting Summary:

The Geochemistry TRT Subcommittee met to discuss the Geochemistry Baseline Data Report (BDR) and the completeness of the Consolidated Permit Application (CPA). The meeting was chaired by Sarah Lewis (DOGAMI), with assistance from Adam Bonin (Cardno). Per requirements, the meeting was recorded to maintain a record under the Oregon Public Meetings Law. Materials shared at the meeting were accessible via AT&T web meeting. Public access was provided at the DOGAMI Portland Office. Topics covered during the meeting included:

- Review of the Geochemistry BDR included in the CPA
- Agency comments and questions to Integral
- Agency key concerns

- Initial recommendations
- Motion adopted
- Action items and next steps

A summary of these topics is provided below.

Review of the Geochemistry BDR completeness

- Presentation provided by Integral, contractor to DOGAMI for reviewing draft versions of the Geochemistry BDR. Integral memo on completeness provided to DOGAMI on January 10, 2020.
- Integral had reviewed earlier versions of this report, and identified data gaps.
- Categories used to assess the completeness of the report:
 - **Category 1:** Work plan performance
 - No major issues
 - **Category 2:** Document completeness
 - Borrow/road cut samples – provide additional info
 - Cemented rock fill – resolve contradictory statements
 - Description of analysis – provide documentation of statistical analysis
 - **Category 3:** Draft permit considerations
 - Data Gaps and remaining tasks identified within document – provide summary
 - Amendment of tailings – identify high pH (~12), provide additional characterization in Tailings Management Plan
 - **Category 4:** Best practices
 - Focus on constituents of concern (metals)
 - Proof-read for typos, cross references, etc.
 - Improve accessibility, including addition of PDF bookmarks, Section 508 compliance as benchmark
- Integral Opinion:
 - Report appears to meet requirements of work plan.
 - Additional documentation and reporting necessary for final approval.

Agency Comments and Questions to Integral

- **DEQ (John Dadoly, Randy Jones):**
 - Similar observations, suggested adding management of waste rock into Tailings Management Plan, perform same tests on waste-rock as tailings?
 - Requested comment on 5% cement to be added to waste rock, with generation of acid as a concern.
 - Integral believes issue should be considered in future management plan, and BDR has sufficient data on this for now.
- **WRD (Phil Marcy):**
 - Cementation should lower oxygen available to create acidic conditions. Asked about permeability of material for groundwater to reach waste rock.
 - Integral: Has not seen info, primary permeability of cemented material can be determined in lab testing, secondary permeability when placed in mine works (shrinkage, settling, cracking).

- **DEQ (John Dadoly):**
 - Need consistency with application that states all waste rock will be in Tailings Storage Facility (TSF), not placed above/below ground water table underground.
- **DOGAMI (Bob Brinkman):**
 - Are they going to be placing cemented waste rock underground above the water table, and basalt quarry rock below, or combine both quarry rock and waste rock as cemented rock fill (CRF) and placed below water table?
 - Integral response: Need characterization within quarry, and clarification on combining quarry rock with waste rock.
- **BLM (Steve Flock, Andrea Bowen):**
 - Where in report is rock to be left in walls discussed?
 - Integral response: Covered in discussion of rock type characterizations that will be encountered during mining, future step is how it would be managed during closure. Might study fate of rock/future conditions after mining, but this is beyond scope of a baseline report.
 - The mine is not supposed to intersect the regional groundwater table. Has that changed?
 - Tabled for discussion during Water Resource Subcommittee meeting.
 - Characterization and reporting in this BDR would not need to be changed based on mining above/below water table.
 - Noted discrepancy between 2017 work plan and 2018 report table 5-6.
 - Integral reply: 2018 samples did not require this analysis. No issue because work adequately characterizes risk.

Agency Key Concerns

- **BLM Key Concerns:**
 - Similar issues that Integral identified, including lack of detail in certain areas, methodology pertaining to sample collection, discussion of quality control was lacking, discrepancies in discussion of intentions for cemented rock fill, lack of discussion for future plans for testing cemented rock fill and spatial gaps.
 - Table has breakdown on depths of material and had gaps where intervals were missing, only defined waste rock below 600-foot depth, discuss why there were gaps.
 - BLM's process is on a different schedule from Oregon and they are not ready to approve baseline data.
- **DEQ Key Concerns:**
 - Inconsistent statements on where waste rock is going.
 - Inconsistencies regarding acid rock generation in the BDR.
 - Lime amendment should be addressed in Tailing/Waste Rock Management Plan.
 - Discussion about use of x-ray diffraction etc. to characterize reactivity/acid producing or consuming phases – work plan and BDR are not consistent.
 - Caveat that leachate chemistry data is qualitative and not considered conclusive – put together tailings management plan to identify what approach would be taken as more is learned about tailings, waste water, and environmental protection.

- Total cyanide and Weak Acid Dissociable (WAD) cyanide would be performed on tailings samples, data collected and not presented, or not collected related to pilot studies?
 - Leachate data with various pH values needs a conclusion.
 - Category 1: No issues.
 - Category 2: Several comments that need addressing.
- **DOGAMI Key Concerns:**
 - Integral has adequately called out issues that needed to be addressed going forward.
 - Need these clarifications to verify data is accurate.
- **WRD Key Concerns:**
 - Mine closure fill needs to be clarified. Need clarification regarding whether waste rock be placed below water table.

Initial recommendations

- **DOGAMI** – Hesitant to approve without resolving Integral’s comments that directly apply to scope of the BDR. Integral has provided framework to address issues prior to approval.
- **DEQ** – Notes that BDR approval will not resolve all DEQ questions/concerns beyond baseline reporting.

Motion adopted

- *Geochemistry Baseline data report is deficient as described, and cannot be approved until these deficiencies have been resolved. Motion to be forwarded to TRT for action.*

Action Items/Next Steps

1. Bob Brinkmann will carry motion to TRT meeting on January 16, 2020.
2. DOGAMI requests written comments from agencies for compilation and transmittal to the applicant for review and response, specifically Category 1 and 2 concerns that contribute to completeness.
3. Overview of TRT meeting purpose and plan, and use of DOGAMI’s commenting forms.