



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

August 22, 2018

10:00 am – Mountain Time

BLM Vale District Office with phone access

Attendance:

Committee Members

- Randy Jones, Oregon Department of Geology and Mineral Industries (DOGAMI)
- Bob Brinkmann, DOGAMI
- Larry Knudsen, Oregon Department of Environmental Quality (DEQ)
- Rick Hill, DEQ
- John Dadoly, DEQ
- Jim Billings, DEQ
- Heidi Williams, DEQ
- Joy Vaughan, Oregon Department of Fish and Wildlife (ODFW)
- Phil Milburn, ODFW
- Tom Segal, ODFW
- Phil Marcy, Oregon Water Resources Department (WRD)
- Jonathan Westfall, US Bureau of Land Management (BLM – ex officio)
- Jackie Cupples, US Fish & Wildlife Service (USFWS – ex officio)

Others in Attendance

- Glen Van Treek, Paramount Gold Nevada/Calico Resources
- Carlo Buffone, Paramount/Calico
- Nancy Wolverson, Paramount/Calico
- Rich DeLong, EM Strategies
- Andy Bentz, Bentz Solutions
- Christine Whittaker
- Mike Murray, HDR
- Larry Meyer, Argus Observer
- Adele Pozzuto, Cardno
- Adam Bonin, Cardno
- Jesse Ratcliffe, Oregon Department of Justice
- Peggy Lynch, League of Women Voters
- Janet Gillaspie, Environmental Strategies

1. Introductions

The meeting was chaired by Randy Jones of DOGAMI. He asked the members of the group to introduce themselves.

Jones said that the meeting was a public meeting and was being recorded.

Jones asked those participating by phone to keep their phones on mute unless they are adding to the discussion. Please leave the call and call back in rather than putting the call on 'hold.'

2. Review of Agenda and Additional Items to Add

Jones asked Technical Review Team (TRT) members if they had additional items to add to the agenda.

Jones provided a reminder that this TRT meeting would accept public comments at the conclusion of the meeting.

3. Determine Best Available Practicable and Necessary Technology – Review of Approach

Jones said one of the TRT responsibilities under Oregon law is the determination of the Best Available, Practicable, and Necessary Technology. As stated in the regulations (OAR 632-037-0118):

“Chemical process mining...must be undertaken in a manner that minimizes environmental damage through the use of the best available, practicable, and necessary technology to ensure compliance with environmental standards.”

Jones summarized the specific directions of the rules, which states:

- a) TRT determines the necessary technologies, if such technologies exist;
- b) TRT determines which, if any, of the necessary technologies are available;
- c) TRT then determines which, if any, necessary and available technologies are practicable;
- d) TRT then ranks the necessary, available, and practicable technologies by (potential) environmental benefit;
- e) TRT recommends to DOGAMI the best available, necessary, and practicable technology to ensure compliance with environmental standards;
- f) DOGAMI requires the applicant to use these technologies.

Jones stated that if the TRT is unable to identify a necessary technology that is available and practicable, DOGAMI shall not issue an operating permit.

Jones said that identifying subsets or elements of the overall operation would be one aspect of approaching this task. He suggested a few subsets to consider, including:

- Mine construction
- Mine operation
- Mine closure and long-term monitoring
- Milling operations
- Wildlife protection
- Tailings disposal
- Reclamation plans

Adele Pozzuto with Cardno made a presentation. She highlighted the regulatory definitions for ‘available’, ‘practicable’, and ‘necessary’.

Pozzuto highlighted some types of technologies to consider:

- Mine operation
- Tailings disposal methods
- Operation monitoring
- Mine closure

- Wildlife protection
- Reclamation and long-term monitoring

And she outlined a suggested approach:

- 1) Identify – potential environmental damage and what process controls contribute and what are relevant environmental standards
- 2) Research – conduct a focused search for technology that minimizes or avoids environmental damage
- 3) Screen – eliminate any technologies from consideration that are not available, practicable, or necessary
- 4) Rank and Recommend – rank alternative technologies to recommend the best technology

Pozzuto said the ranking could be qualitative.

She then provided a hypothetical example:

- There is a release from the tailings storage facility.
- Processes that contribute could be liner degradation over time, or failure of warning systems.
- Environmental standards applicable include WRD Dam Safety regulations and DEQ Division 43 standards for Chemical Process Mines.
- Research – she used a table to illustrate the possible technologies to avoid this environmental release.
- Rank by potential environmental benefit, then TRT makes a recommendation.

Larry Knudsen, DEQ, continued to discuss the overlay with the DEQ Division 43 rules. The DEQ rules include both technical numeric standards [Weak-Acid Dissociable (WAD) cyanide standard] and narrative standards (*'best available'...*) such as is outlined in the DEQ rules, OAR 340-043-0000. There are additional narrative standards in the Division 43 rules related to metals and cyanide standards.

Jones asked for a review from the TRT for the approach and criteria, including:

- Identify
- Research
- Screen
- Rank and Recommend

There were technical difficulties with the A/V connection to the web access for the meeting.

The group reviewed the types of technologies that might be considered:

- Mine construction methods
- Extraction of ore and backfilling
- Transportation of materials
- Milling operations
- Tailings disposal
- Operational monitoring and pollution control methods
- Mine closure methods
- Wildlife protection

- Reclamation and long-term monitoring

Jones asked each participating State Agency to add additional operational subsets or suggest some that were not needed:

➤ **DEQ**

Jim Billings, DEQ, said that the Pre-Feasibility Study (PFS) has lots of details, but there are many remaining questions. He said the liner installation is a question; Heidi Williams, DEQ, agreed. Williams said that the location of the tailings disposal facility is also a remaining question. Knudsen suggested that using an iterative process will be necessary to ensure that the process moves forward at a reasonable pace.

➤ **WRD**

Phil Marcy discussed water supply and how it will affect nearby water resources, including groundwater and springs flow. The amount of water to be used is key; water efficiency is a key. An additional question is how the water from the bottom of the mine will be handled and how water resources will be protected by the 'necessary' technology.

➤ **ODFW**

Phil Milburn asked if water should be a bold heading. He thought the categories covered the issues. Under 'transportation', he suggested that both people and other vehicles be added to be evaluation. He also suggested that 'noise and lighting reduction' be included in Operations. Milburn added these additional issues:

- Wildlife mortality monitoring plan
- Tailings Storage Facility (TSF) toxicity monitoring plan

Milburn suggested that the applicant include a discussion of the technology selection as part of the Consolidated Application.

Joy Vaughan, ODFW, suggested that technologies to reduce wildlife contact would be useful.

The group discussed the WAD cyanide issue in the PFS.

Rich DeLong, EM Strategies, commented that the TRT's task is to evaluate the technologies proposed, not design the perfect mine.

Vaughan said that understanding the global information about chemical mine processing and cumulative effects is important to meet the Oregon performance standards.

Jones discussed concerns about acid-generation potential from the rock encountered in the mine area.

➤ **DOGAMI**

Bob Brinkmann said the ore body is not a significant sulfide bearing ore. Backfilling underground workings meeting neutralization standards and reducing metal leaching potential that might affect groundwater is a key technology. The technology applied to the backfilling material to neutralize it is critical. He also asked about the geotechnical issues related to the underground workings.

Brinkmann suggested that a menu approach to each category would work well.

Knudsen said that for DEQ, applying these types of technical standards are routine and DEQ staff apply them all the time. He continued, this is not designing the perfect facility, it is determining that the proposed technology meets or exceeds the performance standard necessary.

Rich DeLong asked about a requirement for a technology analysis as part of the Consolidated Application. He thinks the technology evaluation is a TRT requirement. Knudsen agreed, and continued that the technology findings will be part of the State Permit Evaluation Report. The State will need the necessary information included in the Consolidated Application to be included.

Knudsen stressed that good communication between the Company and the TRT is important to ensure a complete Consolidated Application.

- Oregon Department of State Lands (**DSL**) – no representative
- Oregon Department of Agriculture (**ODA**) – no representative
- State Historic Preservation Office (**SHPO**) – no representative
- Oregon Department of Land Conservation and Development (**DLCD**) – no representative

A summary of TRT suggestions/issues with ‘Best Available, Necessary, Practicable Technology’ approach outlined by Cardno included:

- Incorporate and ‘crosswalk’ the Cardno approach with the DEQ standards, both the narrative and numeric
- Add ‘water efficiency’ as a criterion
- Include an analysis of the Point of Appropriation at the bottom of the mine for water concerns
- Under ‘transportation’ expand issues beyond the materials; include people and other vehicles
- Add ‘noise and lighting reduction’
- Add ‘mortality monitoring plan’
- Add ‘TSF toxicity monitoring’
- Consider including a discussion of the selected technologies in the Consolidated Application
- Add ‘reduce and minimize wildlife contact’
- Liner materials details, along with Quality Assurance/Quality Control (QA/QC) considerations in installation and testing
- Consider incorporating performance standards as the ‘best available...’ technology

A copy of the presentation is available from

http://www.oregongeology.org/mlrr/chemicalprocess_Calico-GrassyMtn.htm

4. Review of Additional information needed for Consolidated Application, based on information in Preliminary Feasibility Study

Jones reminded the TRT that Calico had provided additional information on the overall mine and processing operations as part of the Pre-Feasibility Study (PFS). Each TRT member state agency was requested to review the Pre-Feasibility Study and determine if the additional information highlighted the need for additional state permits as part of the Consolidated Application or raised additional questions.

After discussion, the TRT decided to explore this issue by agency.

➤ **DEQ – Larry Knudsen**

DEQ had provided a summary e-mail to Jones; additional issues raised by the PFS include:

- TSF location
- Stormwater control design
- Leak detection
- Backfill neutralization
- Handling water encountered during construction
- Vehicle wash water and possible need for additional permits
- Growth medium storage
- Groundwater monitoring
- Industrial solid waste permit/landfill
- On-site sewage disposal permits (timing issue – must be completed in good weather)

➤ **Water Resources – Phil Marcy**

A water right permit amendment will be needed. Additional information will include:

- Drawdown at the Point of Appropriation
- Pump test data will be needed
- Well construction details will be needed

Additional information is needed on long term monitoring strategy for groundwater and area springs.

➤ **ODFW – Joy Vaughan**

She provided a summary of the e-mail she sent to DOGAMI; key issues raised in the PFS include:

- No additional ODFW permit will be needed
- Additional information is needed on the compliance strategy for ODFW Chemical Process Mining Regulations (Division 420), along with Sage Grouse Mitigation regulations, and the overall Wildlife Mitigation regulations
- Cumulative impacts should be addressed
- Power line details are needed
- Additional details needed on employee transportation and access road plans to minimize wildlife conflicts
- Concerns about the open water at the TSF and conflicts with wildlife, such as birds
- Mitigation and monitoring requirements

➤ **DOGAMI – Randy Jones**

He highlighted:

- Land Use Compatibility Statement (LUCS) is needed
- ODFW and DLCD overlap with Goal 5 protection for sage grouse mitigation
- Borrow rock will need a DOGAMI Division 30 operating permit
- Additional details needed for acid/base accounting

➤ **Other Issues**

Additional information on the impacts to and proposed cubic yard disturbance to the identified wetlands

5. Public Comments

Jones stated that the TRT was taking public comments for the first time. There was no one in the room interested in providing public comments.

Jones said that State Representative Lynn Findley had provided a written statement. Jones read the letter into the record. Representative Findley's comment letter is available from the DOGAMI office.

Jones indicated that he would take public comments over the phone, contrary to the information on the agenda.

Jones asked Peggy Lynch, League of Women Voters, if she had a comment. She said she was continuing to follow the process.

6. Necessary Follow up and Next Steps

At the meeting, the group generated this 'to do' inventory:

- TRT members should review the Cardno approach to "*Best Available...*" technology and provide ideas and suggestions to Jones
- Post Cardno '*Best Available...*' presentation to the DOGAMI web site
- The TRT raised an operational question – How will water resources from the bottom of the mine be available/deployed?
- Question from the TRT about the PFS discussion on WAD cyanide
- DOGAMI will draft a letter to Calico inventorying the additional state requirements based on a review of the PFS
- DOGAMI will request the appropriate level of detail and drawings by facility and by permits from each agency

Jones said that Calico has requested additional information on the level of drawings needed in the Consolidated Application; DOGAMI will take the lead in assembling a response letter.

Jones said that the next TRT meeting is September 26, 2018 by phone (public access in person will be available at the DOGAMI Albany office). The Nevada Department of Environmental Protection will be making a presentation. Knudsen asked that a link to an example permit be provided. Jones asked the TRT for key questions from the TRT for the Nevada state regulatory presentation.

Williams asked when Calico would respond to the DEQ questions; Knudsen said there was not likely a single response. Responses are likely to filter in, he said.

Knudsen said that the Nevada approach to groundwater protection is significantly different than the Oregon approach.

Lynch added that the League of Women Voters is following this process to determine if this type of consolidated permitting process is more or less efficient for both State agencies and the Company.

The meeting was recessed at 12:07 pm with anticipation of possible additional public comments. There were no additional public comments. The meeting was adjourned at 12:20 pm (Mountain).