



Technical Review Team (TRT)

Calico Grassy Mountain Gold Mine – BAPNT Part 2

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Agenda

- Project update
- Best Available Practicable and Necessary Technology
 - BAPNT; “best tech”
 - Coordinated discussion on remaining options (continued from Jan 30 TRT Meeting)
 - TRT selection of BAPNT
- Next steps



Project Update

- Environmental Evaluation (EE) approved on October 3, 2024
 - Triggered the 225-day clock for permit drafting (due to DOGAMI in May)
 - Agencies actively drafting permits and conditions
- Federal NEPA process ongoing
 - Environmental Impact Statement (EIS) in preparation
 - DOGAMI / BLM coordination
- **BAPNT**
 - **Determined “best tech” → refined project description → informs permit conditions**



Best Available Practicable and Necessary Technology (OAR 630-037-0118)

- (1) **Chemical process mining including extraction, processing, and reclamation**, 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.
- (2) In determining the best available, practicable, and necessary technology for use in a mining operation, the **technical review team shall apply in consultation with the applicant**, the following process:
 - (a) The technical review team shall **determine the necessary technologies if such technologies exist**;
 - (b) The technical review team shall **determine which, if any, of the necessary technologies is available**;
 - (c) The technical review team shall **determine which, if any, of the necessary and available technologies is practicable**;
 - (d) The technical review team will review, determine, and **rank the necessary, available and practicable technologies by their potential environmental benefits**;
 - (e) **The technical review team shall recommend** to the Department, the technology that the technical review team has determined is **the best available, necessary, and practicable technology to ensure compliance with environmental standards**. The determination shall be made with reference to the policies expressed in ORS 517.953 and 517.956.



Best Available Practicable and Necessary Technology – Process for Grassy Mountain

- Review BAPNT tables provided in advance of meeting
- Discuss remaining options / measures for selection of BAPNT
- Hold vote on BAPNT



Grassy Mountain Gold Mine Project BAPNT Choices

Items 1 through 8 are Applicant-proposed technologies and part of the proposed Project as identified in the Consolidated Permit Application (CPA).

Additional measures for consideration are provided in blue lettered bullets. These are additional measures identified to reduce potential effects and were not identified in the CPA.

Items 9 through 13 are alternative technologies which compare an Applicant-proposed Project component (from the CPA) to an alternative technology.



Applicant-proposed technologies with no BAPNT alternative

1. Mine Construction Methods

Project Component	Best Technologies
Extracting Ore	Underground Mining Mechanized Cut-and-Fill with CRF
Backfilling	Cemented Rock Fill

***bold** indicates Applicant-proposed measure in all tables



Applicant-proposed technologies with no BAPNT alternative

2. Mill Operations

Project Component	Best Technologies
Chemical Ore Processing	CIL Cyanide Circuit, Elution, and Electrowinning Recovery.
Cyanide Management	Detoxification and Neutralization of Cyanide Cyanide Destruction Circuit.
Cyanide Monitoring	Certified Laboratory Testing In-Line Device (e.g., Cynoprobe).
Air Quality Controls	Mercury Retort Oven Wet Scrubber
Process Solution Containments	Concrete Secondary Containments.
Wildlife Exclusion from Mill	Perimeter Fencing and Monitoring Covers, Mesh, or Netting to Reduce Bird and Bat Nesting Covering Waste Bins.
Closure of the Mill	Dismantling, Salvaging, Selling, or Authorized Disposal of Mill Infrastructure Closure-Period Inspections.

- a. Additional Process Solution Containment Measure: Water Stops and Concrete Coatings.
- b. Additional Closure of the Mill Measure: Planting Sagebrush Plugs/Seedlings and Perennial Grasses and Forbs with a Monitoring Program.



Applicant-proposed technologies with no BAPNT alternative

3. Tailings Management

Project Component	Best Technologies
Tailings Disposal	Permanent Storage of Tailings in Lined TSF, TSF Lime Addition, TSF pH Monitoring.
Tailings Water Content	Conventional Tailings Slurry.
TSF Design	Zero-discharge with Synthetic Double Lining.
Leak Detection	Liner Leak Detection and Collection, and Groundwater Monitoring for Leaks.
Long-Term Pollution Prevention Controls and Monitoring	Backfilling using CRF Plugging the Mine Portal Retaining Liners in Perpetuity Reclaiming Mine Areas Converting the Reclaim Pond to an Evaporation Cell Retaining Stormwater Infrastructure
Long-Term Monitoring	Monitoring Groundwater Monitoring Noxious Weeds Facility Inspections, Maintenance, and Repairs Inspections and Sampling of Stormwater Facilities and Discharges Spring and Seep Monitoring
TSF Wildlife Exclusion	Perimeter Fence and TSF Fences and Barriers Monitoring Perimeter for Signs of Wildlife Monitoring and Removal of Aquatic Species in TSF Pond
Closure of the TSF	Dry Closure Conversion of Process Pond to Evapotranspiration Cell

- [Additional Tailings Water Content Measure](#): Water Balance Accounting (including probabilistic and deterministic meteorological water projections).
- [Additional Long-Term Pollution Prevention Controls and Monitoring Measure](#): Monitoring Mined Materials Quarterly During Operations
- [Additional Closure of the TSF Measure](#): Hydroseeding



Applicant-proposed technologies with no BAPNT alternative

4. Air Quality Control Measures

Project Component	Best Technologies
Air Quality Control Measures	Dust Suppression Water Spray Equipment Hoods, Curtains, Chutes Cover/Enclose Material Piles Air Permit BMPs Dust Control Staff Training Backup Generators

- a. Additional Air Quality Control Measure: Monitor TSF for Dust after Operations Cease and Prior to Cover



Applicant-proposed technologies with no BAPNT alternative

5. Operations Monitoring

Project Component	Best Technologies
Operations Monitoring	Resource-Specific Monitoring Plans Permit Monitoring Requirements



Applicant-proposed technologies with no BAPNT alternative

6. Acid Rock Drainage Management

Project Component	Best Technologies
Acid Rock Drainage Management	Cement Rock Fill
	Groundwater Monitoring for Acid Rock Drainage

- a. Additional Acid Rock Drainage Management Measures:
- Additional Monitoring and Testing (by mine level)
 - Additional Water Quality Monitoring
 - Passive or Active Treatment of Acid Rock Drainage



Applicant-proposed technologies with no BAPNT alternative

7. Hazardous Materials Handling, Storage, and Management

Project Component	Best Technologies
Hazardous Materials Handling, Storage, and Management	<p>Toxic and Hazardous Substances Transportation and Storage Plan</p> <p>Waste Management Plan</p> <p>Offsite Hazardous Materials Disposal</p> <p>Toxic and Hazardous Substances Transportation and Storage Plan</p> <p>Stormwater Pollution Control Plan</p> <p>Regular Inspections of Hazardous Materials Storage Areas and Updates to Management Plans</p>



Applicant-proposed technologies with no BAPNT alternative

8. Spill and Emergency Response

Project Component	Best Technologies
Spill and Emergency Response	Spill Prevention, Control, and Countermeasures Plan Emergency Response Plan Mobile Emergency Refuge Stations Fire Alarm System

- a. Additional Spill and Emergency Response Measures:
 - i. Water Stops and Concrete Coatings.
 - ii. Strobe Lights, Light Vests, Laser Pointers, Lifelines, Cones, and Reflective Strips.



Comparison of Applicant-proposed Technology to an Alternative

Items 9 through 13 are alternative technologies which compare an Applicant-proposed Project component (from the CPA) to an alternative technology. **Applicant-proposed Project components are shown in bold.**



Comparison of Applicant-proposed Technology to an Alternative

9. Transporting Mined Materials

Alternative Technologies	Comments and Recommendations
Diesel Fuel (Trucks and Loaders)	Applicant-proposed measure.
Biodiesel Fuel (Trucks and Loaders)	Would reduce diesel exhaust effects underground. However, underground equipment would be mostly electric, and it may be difficult to source biodiesel in the area.



Comparison of Applicant-proposed Technology to an Alternative

10. Closure of the Mill

Alternative Technologies	Comments and Recommendations
Breaking, Burying, and Recontouring Foundations	Applicant-proposed measure. Recommended – would not require additional hauling and disposal.
Removal of Foundation Materials	Removal of foundation materials would generate construction waste materials that would need to be loaded and trucked off-site to another location for disposal.



Comparison of Applicant-proposed Technology to an Alternative

11. TSF Wildlife Exclusion

Alternative Technologies	Comments and Recommendations
Bird Deterrent Balls on TSF Reclaim Pond	Applicant-proposed measure. Recommended to prevent birds from physically landing on the TSF Reclaim Pond.
Visual Deterrents: Effigies, Predator Models	Measure recommended in addition to Applicant-proposed bird balls. Studies show these to be somewhat effective in deterring birds in other situations (e.g., oil sands).
Radar-activated Propane Cannons	May be used in addition to Applicant-proposed bird balls. This would create additional noise effects.
Laser Bird Deterrents	Measure recommended in addition to Applicant-proposed bird balls. Studies show these to be somewhat effective in deterring birds in other situations (e.g., airports).
Emergency Hazing	Possible ODFW contingency measure.
Bio-exclusion Zones	May be used in addition to Applicant-proposed bird balls. May have additional effects to vegetation.



Comparison of Applicant-proposed Technology to an Alternative

12. Water Management

Alternative Technologies	Comments and Recommendations
Site Groundwater Production Wells and Water Level and Quality Monitoring	Applicant-proposed measure. Recommended as an effective strategy for meeting project water needs.
Groundwater Production Sumps for Dewatering	Could not be used exclusively. Groundwater production from sumps would be used in addition to production wells but would not provide a sufficient water volume to meet project needs.

a. Additional Water Management Measure: Closure Reclamation of Water Supply Piping



Comparison of Applicant-proposed Technology to an Alternative

13. Equipment Maintenance

Alternative Technologies	Comments and Recommendations
Preventative Maintenance	Applicant-proposed measure. Recommended to prevent accidents and injury.
Reactive Maintenance	Not recommended. May result in unexpected down times and higher injury risk from faulty equipment.



BAPNT Voting

The TRT will be asked to vote on the following for BAPNT:

1. **Items 1 - 8** – Applicant-proposed technologies without feasible alternatives
 - a. Additional measures for further environmental protection
2. **Items 9 - 13** – Applicant-proposed technologies compared to alternatives
 - a. Additional measures for further environmental protection



Next Steps

- Follow-up BAPNT coordination (if required)
- State agencies consider “best tech” during permit / conditions drafting
- Future TRT meetings