State of Oregon
Department of
Environmental
Quality

Water Pollution Control Facility and Solid Waste Facilities
Permit Fact Sheet
Calico Resources USA Corp.

Permittees	Calico Resources USA Corp. and Rachel Goldman Grassy Mountain Mine located 17 Miles south of Vale OR off Russel Rd. Vale, OR 97918
Permittee Contact	Rachel Goldman glen@paramountnevada.com 775-625-3600 665 Anderson St Winnemucca, NV 89445
River Basin Information	Nearest Surface Water: Owyhee Sub-watershed Name: Upper Negro Rock Canyon HUC 12-170501170501 Receiving Stream (if discharge occurs): Unnamed intermittent stream Reach Code: 17050117004128 Receiving Stream flows into: Malheur River at RM 28.1 (which is 17 linear miles NNW of the site). Assessment Unit ID: 17050117 Basin Name: Malheur
Proposed Action	New Permit Issuance Application Number: 948323 Date Application Received: 10/9/2023
Permit Writers	Ryan Lewis (solid waste), Pat Heins (water quality), and David Cole (groundwater) 503-229-5696 Date Prepared: 7/15/2025

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1. Introduction

DEQ is required to develop a fact sheet that briefly describes the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit for each major domestic or industrial facility (OAR 340-045-0035). This fact sheet is intended to address this requirement and provide the background and framework for permit development. This document identifies the permitting team's general approach and basis for the various permit limits and conditions. The permit is divided into the following sections:

Schedule A – Waste discharge limitations
Schedule B – Minimum monitoring and report requirements
Schedule C – Solid Waste Requirements
Schedule D – Special conditions
Schedule E – General conditions

1.1 Regulatory Framework

The Federal Water Pollution Control Act (also referred to as the Clean Water Act) establishes a federal mandate to protect waters of the United States. The State of Oregon addresses that mandate, in part, through Oregon Revised Statutes (ORS) Chapters 468 and 468B. Oregon Administrative Rules (OAR) Chapter 340, Division 45 (authorized by ORS 468B) provides for the implementation of state Water Pollution Control Facilities (WPCF) permits that are issued by the Department of Environmental Quality (DEQ). This permit is written to address the water quality concerns associated with this project.

This permit also addresses OAR chapter 340 division-043[1] which requires chemical process mines to obtain a water quality permit (NPDES or WPCF). Division 43 rules include specific regulatory requirements—including design, construction, monitoring, and closure requirements for a Tailings Storage Facility—that are substantively similar to the requirements for non-municipal landfills under DEQ's solid waste disposal rules. The tailing and waste rock generated by the project meet the definition of solid waste under ORS 459.005(25) and are subject to regulation pursuant to ORS chapter 459 and related statutes and rule. This permit is written to address both water quality permit requirements as well as solid waste permit requirements

[1] 340-043-0020 Permit Required. (1) As required by ORS 468B.050, a person proposing to construct a new chemical mining operation, commencing to operate an existing non-permitted operation, or proposing to substantially modify or expand an existing operation shall first apply for, and receive, a permit from the Department. The permit may be an NPDES (National Pollutant Discharge Elimination System) permit if there is a point-source discharge to surface waters or a WPCF (Water Pollution Control Facility) permit if there is no discharge. Consideration may be given to site-specific conditions such as climate, proximity to water, and type of wastes to establish the final permit type and requirements for the facility.
(2) The permit application shall comply with the requirements of OAR 340, divisions 14 and 45 and be accompanied by a report that fully addresses the requirements of this Division.

associated with constructing, operating and closing a mining operation that utilizes chemical mineral extraction methodologies in the state of Oregon.

The permit is written with the expectation that the permittee will use the best available, practicable and necessary technology to ensure compliance with environmental standards (ORS 517.956).
Pursuant to OAR 340-043-0025 paragraph 2, Ms. Rachel Goldman, president of Calico Resources USA Corporation is individually identified in the permit as the executive officer who controls the permittee and personally assumes liability for environmental injuries, remediation expenses and penalties associated with this permit[2].

This project is proposed to take place on three patented lode mining claims, 90 unpatented lode mining claims, and nine unpatented mill site claims[3]. ORS 197.180 requires that DEQ permitting decision be consistent with applicable land use statues and rules and approved comprehensive plans. Pursuant to OAR chapter 340 division 18, applicant has submitted a Land Use Compatibility Statement for the portion of the project not on federal land. The permitting state agencies will make land use findings for the portion of the project on federal land as described in OAR 340—018-0040.

2. Site Description

2.1 Mining Site

Calico Resources USA Corp. (Calico) proposes to construct, operate, reclaim, and close an underground gold and silver mine, chemical processing facility, and tailings storage disposal site, known as the Grassy Mountain Mine Project. The project is estimated to consisted of site preparation and construction with approximately 8-years of active mining followed by mill decommissioning and site restoration work. The primary site and mining operation will be located on tax lots 100 & 101 in Township 22E Range 44E Sections 5, 7, and 8, consisting of both private and federal (Bureau of Land Management) land in Malheur County about 22 miles south-southeast of Vale, Oregon. Latitude: 43.670464 and Longitude: -117.361132. See Figure 2-1. The project involves multi-agency coordination as well as cross-program coordination within DEQ. This permit is a combined permit covering both water quality and solid waste programs.

2.1.1 Facility siting

The site will be situated in a semi-arid plateau region typical of high mountain desert environment with an estimated average annual precipitation of 9.77 inches, mostly as snow during the winter. The terrain is gentle to moderate with elevations of 2,320 to 4,040 feet above sea level. Rock outcroppings consist of basalt, siltstone, sandstone, and conglomerates. The area

[2] OAR 340-043-0025(2) Unless an exception is granted by the EQC pursuant to section (3) of this rule, and consistent with the provisions of section (4) of this rule, the Department shall require, prior to issuing or renewing a permit for a chemical mining facility, and as a condition of the permit, that those persons or entities who control the permittee assume liability for environmental injuries, remediation expenses, and penalties.
[3] Calico Resources, Oct. 2023. Grassy Mountain Mine Project Consolidated Permit Application prepared by Calico Resources USA Corp. Dated December 2021 revised October 2023.

is identified as having a low seismic risk with no known active or potentially active faults. Groundwater beneath the site ranges from 155 to 232 feet below ground surface. The hills and ridges tend to be exposed bedrock with the valleys containing shallow alluvial soil overlaying deeper lacustrine clays. These are generally characterized as fat clay (with variable quantities of fine- to medium-grained sand deposits) with lesser amounts of lean clay and poorly graded sand lenses. Infiltration rates of precipitation to groundwater are estimated to be 0.5 to 1 inch per year. Surface water flows, when present generally flow north away from the proposed complex. Groundwater generally flows from the southeast to the northwest with some local variations attributed to faults, fractures, lithologic facies or combination of factors. Due to the complexity of the aquifer's stratigraphy the hydraulic conductivity ranges from 3 feet per day to 0.0004 feet per day. The nearest perennial stream is the Owyhee River approximately 4.5 miles east and southeast of the site. There are several springs and seeps around the site. The closest spring identified in the Surface Water Baseline Report[4] is Grassy Spring which is approximately 4,000 feet south/southeast of the mine portal. Based on the groundwater contour maps in the Groundwater Report[5], this spring is upgradient of the mine. The closest downgradient spring is identified as the Tank East of Negro Rock which is approximately 2 miles northwest of the mine portal.

2.2 Planned processes

Rock ore mined from underground workings will physically be crushed and ground with process water to achieve a desired product size in the onsite processing plant. The process water will consist of well water, mine dewatering water and any water captured from the tailing's storage facility. The ore will be chemically leached in-vessel to extract gold and other precious metals using sodium cyanide, sodium hydroxide, and hydrogen peroxide utilizing a carbon in leach process. Calico has stated that additional, unspecified reagents may be included depending on the specific process or operational objective. Gold containing sludge from the leaching process is combined with silica, nitre, borax, and sodium carbonate and smelted in an electric furnace to recover precious metals. Mercury that is removed from the sludge and retort condenser will be collected and sent off site for third-party processing.

Tailings that no longer contain economically recoverable precious metals are treated with sodium metabisulphite and copper sulfate to reduce concentrations of weak-acid dissociable (WAD) cyanide (e.g., copper, cadmium, nickel). It is unclear how treatment will affect concentrations of total cyanide in the slurry that include stronger metal-cyanide complexes such as iron and cobalt, metal anions / hydroxides, and thiocyanates. The detoxification process creates sulfuric acid, so lime is added to the process to control pH by counteracting acid production. Further cyanide reductions may occur through photodegradation and biodegradation after placement in the TSF if the correct conditions are achieved.

Tailings from the processed ore will be a liquid-solid slurry, which will be pumped from the processing mill into an adjacent lined mining landfill called a Tailings Storage Facility (TSF). See Figure 2-2. The proposed TSF serves as a temporary wastewater containment facility and

[4] SPF 2018, Grassy Mountain Gold Project Surface Water Baseline Report, SPF Water Engineering, August 14, 2018. Appendix B16 of the Consolidated Permit Application.
[5] SPF 2021, Grassy Mountain Gold Project Groundwater Vol. I, Groundwater Baseline Data Report, December 8, 2021. Appendix B9 of the Consolidated Permit Application.

provides permanent land disposal of tailings. The tailings likely will have as of yet unknown concentrations of heavy metals and some level of residual cyanide (free cyanide and weak to strong metal cyanide complexes). The TSF will be in the broad valley immediately west of the Mine Portal and Process Plant. The TSF will fill the native valley and requires staged embankment or dam construction on the north and west sides. At an average deposition rate of 680 short tons per day and total available tailings capacity of 3.64 million short tons the TSF will be constructed in three overall stages. The overall disturbance area is estimated to be approximately 108 acres at completion of operation. The TSF will be a 100-percent geomembrane-lined facility with continuous leakage detection and collection systems.

The tailings slurry material in the TSF is expected to dry and solidify in-place through surface evaporation as well as the drain-down of excess water to a leachate collection system above the composite liner. Leachate from the tailings would be constantly removed by way of a through-put bottom drain and the leachate will be reused in the processing facility. Upon closure of the facility, if designed and operated correctly, the tailings would be dry, inert, structurally stable, and the TSF would be suitable for closure and reclamation.

With the TSF filling the existing broad valley, a permanent surface water diversion structure is proposed to channel stormwater surface flows around the mining infrastructure. Stormwater management is not covered under this permit. The site is required to obtain a separate 1200-Z stormwater permit coverage from DEQ.

The Temporary Waste Rock Storage Facility (TWRSF) will temporarily hold waste rock produced during ongoing mining operations. This structure will be geomembrane-lined storage area adjacent to the TSF, with an underdrain system routed to the Reclaim Pond. It is DEQ's understanding that the TWRSF will be decommissioned by removing the liner and returning the soil and vegetation to conditions similar to pre-project standards.

2.3 Water management

The site will consist of five main process water storage structures: the raw water tank, process water tank, catchment pond at the mill, the tailings storage facility, and reclaim pond. There will be sumps located at the vehicle wash pad (with an oil/water separator), waste rock storage site, and run-of-mine ore stockpile that will capture and divert wastewater to the TSF.

The overall water balance for the operations is planned as net negative and process water for the process plant, select reagent preparations, and truck washing will consist of raw water additions as well as reuse of decant water (i.e., wastewater/leachate) from the TSF.

The underground working's dewatering system is designed for 200 gallons per minute (gpm) to accommodate both the estimated maximum inflow rate (78 gpm) and underground mine water management should a fissure or seam release groundwater at a faster rate. Current dewatering estimates vary from 15 gpm during construction to 115 gpm during the first year of mining with an average of 60 gpm over the life of the mine. This water will be used in the underground mine workings for drilling, dust suppression, and shotcrete mixing. Shotcrete will be used to help control acid rock drainage and other structural uses in the mine.

An underdrain system of the TSF will divert settling water via gravity flow to the Reclaim Pond. As the solids settle in the TSF a supernatant pool will form on the surface. This water will be collected through a floating barge and pumped to the Reclaim Pond.

The 146,000 gallon Reclaim Pond will be a double-lined pond north of the main embankment and will contain the TSF and TWRSF underdrain flows. Water from this pond will be pumped to the Process Plant for reuse in the extraction process.

2.4 Waste rock

Calico proposes to generate approximately 272,000 tons of waste rock from project excavation and construction that will be temporarily stored in the lined temporary waste rock storage facility (TWRSF) located adjacent to the TSF. Geochemical characterization indicates that the waste rock will generate acid and leach inorganics under long term weathering conditions. The TWRSF will be designed to employ the same containment system as the TSF (i.e., liner, leak detection, leachate collection).

During operations, Calico proposes using both waste rock and basalt rock from a surface quarry site adjacent to the mine as structural backfill in the underground workings to provide safe and stable working surfaces. Geochemical characterization has demonstrated that the basalt rock from the quarry is non-acid generating and may be used as clean fill. However, the waste rock has been identified as acid-generating and Calico proposes stabilizing the waste rock to produce a geochemically stable material that will mitigate acid generation and inorganics mobilization.

Since the entirety of the mined and backfilled void will be unlined, and actual groundwater conditions in the underground workings is not definitive, it is possible that a portion of the underground backfill will be below the static groundwater table. Calico proposes placing concrete-stabilized waste rock at depths and locations intended to minimize potential effects to groundwater quality. As a condition of beneficial use of concrete-stabilized waste rock, DEQ is imposing permit conditions requiring pH monitoring requirements on cement-stabilized waste rock.

2.4.1 Tailings and Waste Rock Management

At the time of closure, Calico proposes removing all unused residual waste rock from the WRD and placing it in the TSF.

2.5 Operational equipment

The proposed project consists of construction of an ore mill that will treat 750 short tons per day of ore. This will consist of reagent storage, crushing area, ball mill, screening, cascading cyanide leach tanks, carbon acid wash, elution column, and a carbon kiln. The gold room will contain the electrowinning process, the mercury retort, and smelting furnace and stored doré bars for analysis and shipment to an off-site refinery. Attached to the mill will be a back-up generator, baghouse, wet scrubber, and process water tank

An assay lab, plant workshop, administrative offices, vehicle wash pad, fuel storage and truck shop will be located adjacent to the mill.

At the end of operations, underground piping, pumps, tanks, pumping equipment, fans, motors, pumps, compressors, power supply, electrical distribution equipment, ventilation curtains and ducts, and other equipment will be removed, as practicable as determined by DEQ, and salvaged for use at another site or disposed in an approved solid waste facility. However, the applicant proposes that some inert solid wastes, specifically 12,800 feet of HDPE water pipe connecting the production wells to the processing plant, be abandoned and left in place. DEQ may authorize in-place disposal under solid waste requirements in the permit.

2.6 Summary

In summary, the project is proposed to treat and reuse all process wastewater. Wastewater discharged to the TSF with tailings will be treated to reduce cyanide concentrations and collected wastewater/leachate be reused in operations. Consequently, no surface process wastewater will be discharged to the soil, surface waters, or groundwater. Water captured in the underground station sumps have the potential to leach into the subsurface and requires monitoring[6].The project's solid waste disposal facilities have potential to pollute surface water and groundwater[7] as well as soils, including:

- the TSF (a industrial solid waste landfill, intended as a permanent solid waste disposal site that also functions as a wastewater containment facility),
- the waste rock dump (a industrial solid waste landfill, intended as a temporary solid waste storage facility),
- concrete neutralization of the waste rock (a solid waste treatment facility) [8], and
- the underground backfill using waste rock (a solid waste land disposal facility).

This permit was developed to combine a water quality permit, an industrial waste landfill solid waste disposal site permit, a treatment facility solid waste disposal site permit, and a beneficial use determination into a single permit.

[6] OAR 340-040-0030 directs DEQ to review technical information to determine the potential for adverse impacts to groundwater quality. If adverse effects are likely DEQ shall require groundwater monitoring requirements.

[7] ORS 459.045 directs the EQC to adopt solid waste management rules reasonable and necessary to prevent vector production and sustenance, transmission of diseases to humans or animals, air pollution, pollution of surface or groundwater, and hazards to service or disposal workers or the public.

[8] Under Solid Waste rules, OAR 340-093-0030(97) defines **treatment** as "…any method, technique, or process designed to change the physical, chemical, or biological character or composition of any solid waste except for composting, material recovery, or energy recovery. Treatment includes but is not limited to detoxifying or remediating solid waste *prior to disposal or beneficial use*." [emphasis added]
OAR 340-093-0030(98) defines **treatment facility** as "…a facility intended for treatment of solid waste. It includes but is not limited to soil remediation facilities and rotary kilns used to treat oily sludges. It does not include composting facilities, material recovery facilities, energy recovery facilities, incinerators, or conversion technology facilities as defined in this rule."

Figure 2-1: Site Location Map

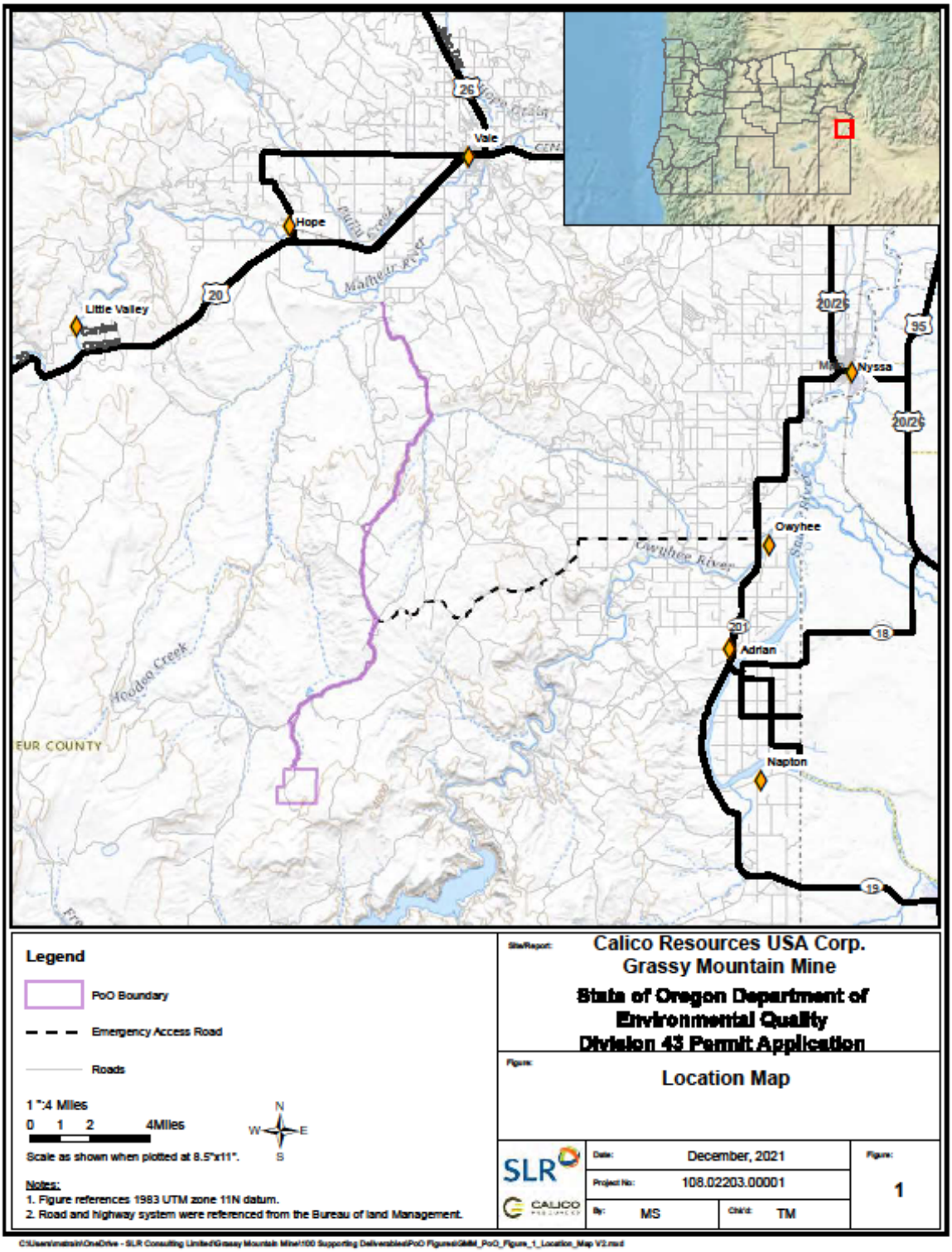
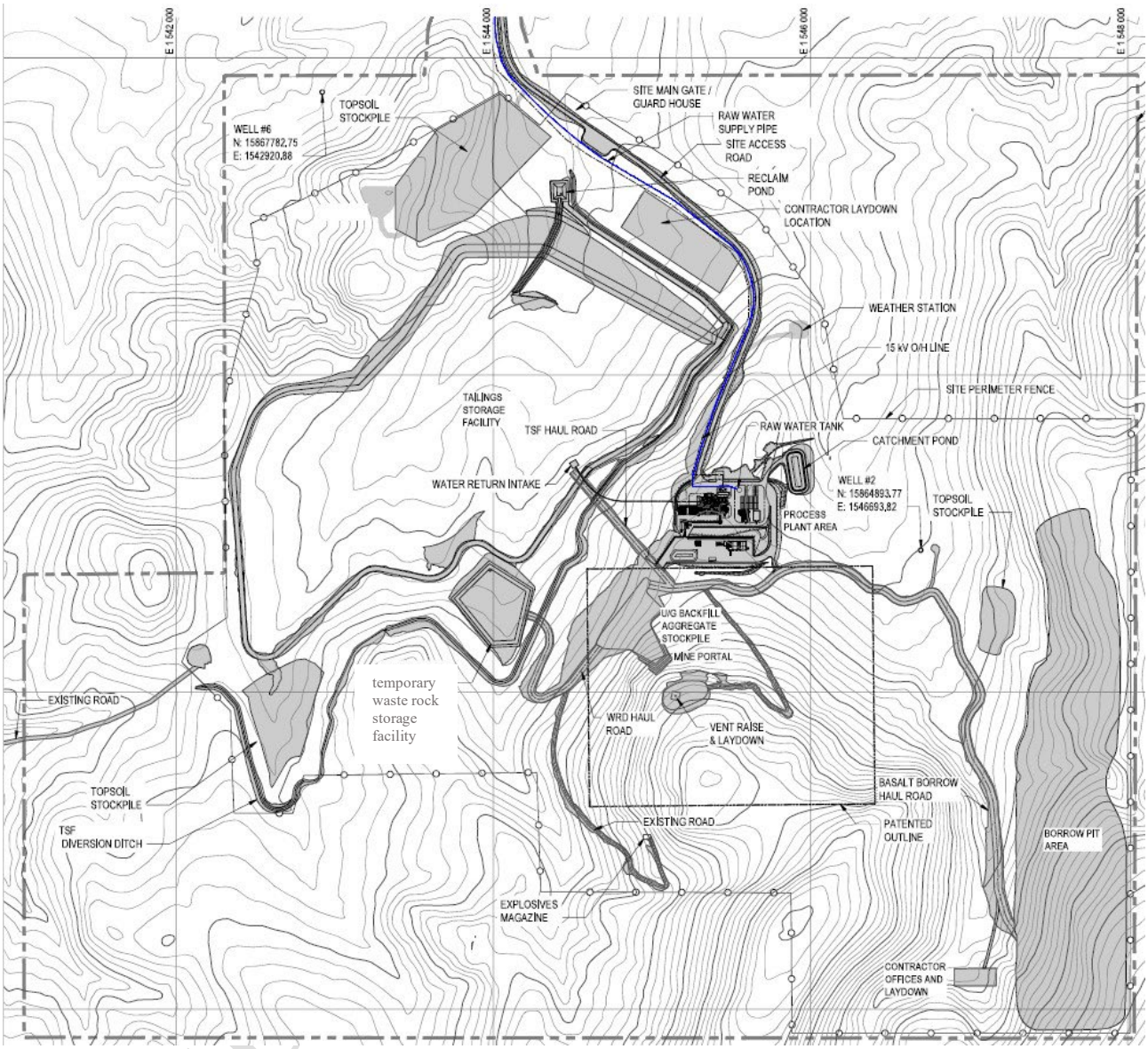


Figure 2-2: Site Map



2.7 Stormwater

A general NPDES permit for stormwater is required for this site. Stormwater from this site is regulated under a General 1200Z NPDES Permit assigned to this site and not included in this permit. Sanitary sewer water is not covered under this permit and is covered by a separate DEQ permit for their onsite system.

2.8 Industrial Pretreatment

The permittee does not have a DEQ-approved industrial pretreatment program. Based on current information, no industrial pretreatment program is needed. There will be no pretreatment program in the proposed permit as it is not applicable for this site. In addition, the permit will prohibit this site from accepting any waste from other industrial facilities.

3. Schedule A: Permit Limit Development

3.1 Permit development

Effluent limits serve as the primary mechanism in water quality permits for controlling discharges of pollutants. Effluent limitations can be based on either the technology available to control the pollutants or limits that are protecting soil production, groundwater quality standards, or environmental receptors. DEQ uses these standards to develop permit limits.

3.2 Pollutants of Concern

The sections below describe the pollutants identified as a potential issue at this site and the limits contained in the permit to address these potential issues.

3.2.1 Pollutant identification

To ensure that a permit is protecting water quality, DEQ must identify pollutants of concern. These are pollutants that are expected to be present in the effluent at concentrations that could adversely affect human health or the environment. DEQ uses the following information to identify pollutants of concern:

- Permits issued from other states of similar facilities.
- Knowledge of the permittee's processes as presented in application materials.
- Pollutants identified by applicable Federal and trade publications such as:
    - The Mining Association of Canada *A guide to the Management of Tailings Facilities*, March 2021 and *Operation, Maintenance, and Surveillance Manual*, March 2021
    - The International Network for Acid Prevention *Global Acid Rock Drainage Guide*, October 2014
    - U.S. EPA *Design and Evaluation of Tailings Dams*, August 1994 and *Effluent Limitations Guidelines and New Source Performance Standards for the Ore Mining and Dressing Point Source Category*, November 1982.

For this site DEQ identified the following pollutants of concern.

Table 3-1 - Pollutants of Concern

Pollutant	How was pollutant identified?
pH	Presents of acid generating ore
Aluminum	Identified as potential contaminant in trade publications
Ammonia	Contaminant as a part of the SO2 cyanide process
Antimony	Identified as potential contaminant in trade publications
Arsenic	Chemical commonly mobilized in < 4 or > 10 pH conditions
Boron	Chemical additive for mineral extraction
Cadmium	Chemical commonly mobilized in < 6.5 pH conditions
Chromium	Chemical commonly mobilized in < 6 pH conditions
Copper	Chemical commonly mobilized in < 5.5 pH conditions
Cyanide	Chemical additive for mineral extraction
Cyanate	Contaminant as a part of the SO2 cyanide process
Iron	Identified as potential contaminant in trade publications
Lead	Chemical commonly mobilized in < 5 pH conditions
Manganese	Identified as potential contaminant in trade publications
Mercury	Chemical mobilized in < 6.5 pH conditions & common contaminant with proposed process
Molybdenum	Identified as potential contaminant in trade publications
Nickel	Chemical commonly mobilized in < 6 pH conditions
Nitrate	Contaminant as a part of the SO2 cyanide process
Petroleum hydrocarbons	Deisel powered equipment and lubricants
Selenium	Chemical commonly mobilized in < 4 pH conditions
Sodium	Chemical additive for mineral extraction
Thiocyanate	Contaminant as a part of the SO2 cyanide process
Vanadium	Identified as potential contaminant in trade publications
Zinc	Chemical commonly mobilized in < 6 pH conditions

The sections below discuss the analyses that were conducted for the pollutants of concern to determine the appropriate permit limits.

3.2.2 pH

The material removed from the mine to gain access to ore is referred to as waste rock or development rock. The waste rock for the Grassy Mountain Mine has been demonstrated to be potentially acid generating. Waste rock will be temporarily stored in the Temporary Waste Rock Storage Facility (TWRSF), a lined facility adjacent to the Tailings Storage Facility (TSF). Leachate from the TWRSF will drain to the Reclaim Pond (where TSF leachate is also collected) and recycled into the beneficiation process circuit in the mill. Waste rock will be used as a minor source of aggregate for making Cemented Rock Fill (CRF) which is used during mining as backfill of the underground workings. The rest of the aggregate will be inert basalt from the

project quarry. Mixing the waste rock with cement binders to make CRF has been demonstrated to eliminate the potential for acid generation. The waste rock and leachate must be sampled and analyzed on an ongoing basis to provide data to assure that CRF made with waste rock is non-acid-generating.

The applicant's *Baseline Geochemical Characterization Report* (SRK, 2022a; CPA Appendix B6) identifies the studies conducted for predicting the acid generating potential and other geochemical properties of the Project's tailings. This included Acid Base Accounting (ABA) and Net Acid Generation (NAG) testing. The results indicate that despite low sulfide sulfur, the Project tailings material has a potential to generate acid due to the low Neutralization Potential (NP). To increase the NP of the Project tailings, lime will be added to the tailings before TSF deposition.

The ABA test results were used to estimate the amount of lime treatment that will be required to neutralize the tailings. These results also demonstrate that there is some variation in the sulfide sulfur and NP content of the tailings materials during mining operations. To account for this variation, the amount of lime amendment must exceed the minimum amount required to ensure that the neutralization criteria is met but not so much as to create alkaline conditions.

The pH water quality criterion for this area is 6.5 – 8.5 per OAR 340-041. Because the site is not allowed to discharge to waters of the state, DEQ established the permit limits for down gradient groundwater conditions to match the basin's background conditions to ensure there is no reasonable potential for the permitted activity to adversely affect regional groundwater quality. The permit will also require monitoring of the underground working's sump water to ensure acid generation is appropriately addressed. Preliminary sampling of the groundwater indicates the average pH is 8.1 in the sampled aquifers.

The pH of the slurry discharged to the TSF can adversely affect the liner causing degradation and potential failure. Unless mitigated, tailings will be acid-generating, which may aid in metals mobilization. OAR 340-043-0130(2) requires acid-generating be neutralized with basic materials. Moreover, the pH of the tailings greater than 12.5 S.U. and less than 2 S.U. meet the hazardous waste disposal exclusion under OAR 340-043-0060 and are prohibited from placement in the TSF.

3.2.3 Inorganics

Inorganics, such as arsenic, selenium, and heavy metals can be found in rock formations. Some are essential for plant and animal growth in the right concentrations, but the overabundance of these compounds can be toxic to plants and animals. Changing the pH of liquids in the soil, around the natural rock formations and ore deposits can mobilize these compounds such that they leach into groundwater in elevated concentrations. The applicant's Baseline geochemical report[9] identified several inorganics that are anticipated to be in the waste rock. These inorganics along with the inorganics identified in the submitted monitoring plan[10] were included in the draft permit's required monitoring. DEQ is using the ecological screening values for the limits identified in the draft permit for inorganics that are anticipated to be concentrated as part of the mining activities to ensure protection of wildlife accessing the site. This is directed by ORS

[9] SRK, 2022, Baseline Geochemical Characterization Report Grassy Mountain Project, SKR Consulting, March 2022.
[10] Calico 2023, Grassy Mountain Mine Project Tailings Chemical Monitoring Plan, Calico Resources August 2023.

517.956(2)(a) which states “Mining operations in Oregon shall…maintain an objective of zero wildlife mortality”. Because the applicant has selected cyanide leaching for the method of mineral extraction conducted on site cyanide is discussed in more detail below.

3.2.3.1 Cyanide

The applicant selected a dilute (~25%) sodium cyanide solution for extracting the gold from the other minerals in the ore. There are many chemical forms of cyanide present in the environment, including free cyanide, metallocyanide complexes, and synthetic organocyanides. However, free cyanide which is the sum of molecular hydrogen cyanide (HCN) and the cyanide anion, (CN-) is the most hazardous form. It can be fatal when encountered in high concentrations.

Human health - When inhaled, ingested, or absorbed through the skin, cyanide is quickly distributed throughout the body via blood. It disrupts the body's cellular respiration, causing rapid systemic effects which results in symptoms like dizziness, headache, rapid breathing, seizures, and ultimately, death if exposed to high concentrations. The primary concerns are the effects to the brain and heart due to their high oxygen demand.

Fate and transport - In general cyanide ions are not strongly adsorbed or retained in the soil and typically leach into the surrounding groundwater. Though not strongly bound to soil particles some adsorption can occur depending on soil composition, potentially limiting mobility in certain environments. Sodium cyanide readily dissolves in water, allowing for easy transport through aqueous environments. When released into the environment, sodium cyanide can break down in water and soil under specific conditions, primarily through oxidation, generating less toxic compounds such as thiocyanate. However, due to its high toxicity, it can still contaminate waterways and groundwater if not properly managed, and can travel through water systems, with the potential to adversely affect aquatic life. Sodium cyanide decomposition is influenced by pH levels and the presence of other chemicals in the environment, sometimes releasing highly toxic hydrogen cyanide gas in acidic conditions.

Environmental health - Any cyanide released into aquatic systems is a key concern for wildlife do to the high acute toxicity posed to fish, aquatic invertebrates and birds. Isolating wildlife from cyanide-containing material by physical barriers beyond the perimeter fence has also been identified as impractical at the mine site. As such, limiting the concentrations of cyanide is the only means of ensuring wildlife protection.

Cyanide management - The permit application documents state the applicant will abide by the International Cyanide Management Code (ICMC). This is a voluntary initiative for gold and silver mining industries as well as producers and transporters of cyanide to improve the management of cyanide to protect human health and reduce environmental effects. It focuses on the safe management of cyanide and cyanidation mill tailings and leach solutions. Participation requires companies to participate in audits by an independent third party.

At the proposed mill, tailings from the cyanide carbon-in-leach circuit that no longer contain recoverable gold are anticipated to have 200 mg/L of weak acid dissociable (WAD) cyanide. The applicant intends to break down the WAD cyanide by a detoxification system utilizing sulfur dioxide/air process. Lime would be added to buffer pH of the slurry, copper sulfate would be added as a catalyst, and sodium metabisulfite will provide a sulfur dioxide source. The air and sulfur dioxide (SO_2) in the cyanide detoxification tank will reduce the residual WAD cyanide concentration in the liquid component of the tailings. These treated tailings will be discharged into the lined tailings storage facility through evenly spaced spigots to create benched discharges.

Some additional degradation of the cyanide may occur through exposure to ultraviolet light and biological activity with cyanide-metabolizing bacteria provided the appropriate pH is obtained. The solids will settle out and the liquid will either form a supernatant pool at a low point in the tailing's storage facility or flow through the underdrain system into the reclaim pond.

The final free and WAD cyanide concentration in the plant tailings stream will be continuously monitored by automated probes to ensure compliance. A secondary means of control and monitoring of the cyanide destruction process is provided through automated Oxidation Reduction Potential measurement. WAD cyanide levels in the process plant will be continuously monitored, with a specified sample analysis cycle time to enable a prompt response to any deviations of the target levels. The onsite laboratory will be equipped to determine WAD cyanide concentration by manual titrations using the picric acid method to verify the automatic WAD cyanide analyzer. Should WAD cyanide concentrations in the tailings stream exiting the process plant become elevated, plant operations will stop until the deviation can be rectified.

Besides the continuous automated monitoring from the plant, regular measurements in the supernatant pond to measure potential wildlife exposure as well as the collection of whole (total water) and analysis of total, WAD cyanide, and free cyanide for the assessment of potential risk. These are standard monitoring analytes to assess risk and adequately understand the nature of the exposure environment.

Birds and other wildlife that penetrate the perimeter fence would be exposed to the solids and liquids held at this site. As part of the permit application process the applicant provided an Ecological Risk Assessment for this project[11]. This risk assessment identifies birds consuming supernatant pond water in the TSF represent the greatest potential cyanide risk to wildlife. This risk assessment states that an average total cyanide concentration of 1 mg/L in the supernatant pond will produce a hazard index of 0.63 (DEQ identifies acceptable risk levels for ecological receptors as less than 1).

The applicant has indicated in their application information that their cyanide detoxification process can achieve a WAD cyanide concentration of 1 mg/L or less. The applicant's risk assessment goes further and states the 1 mg/L of cyanide "…was selected as a practicably and reasonably achievable level for the processes and conditions present at the Grassy Mountain Mine based on professional experience and data from other mines."[12] OAR 340-043-0130(1) requires cyanide concentrations in the tailings to be reduced to the lowest practicable level. The applicant previously predicted cyanide concentrations of approximately 0.013 mg/L and 0.024 mg/L in supernatant and underdrain/reclaim pond, respectively in the *Numerical Prediction of Tailings Supernatant Pond Chemistry for the Grassy Mountain Project* prepared by SRK Consulting in 2021. As such, the permit identifies the total cyanide limit for slurry discharged to the TSF to be 1 mg/L which is supported by the ecological risk assessment and establishes contingency actions for when cyanide concentrations exceed 1 mg/L, 15 mg/L and 30 mg/L.

The action levels for cyanide concentrations entering the TSF trigger specific requirements to mitigate risk. Total cyanide concentrations exceeding 1 mg/L trigger more frequent monitoring and process review to identify the cause of the exceedance; cyanide concentrations over 15 mg/L trigger notification to DEQ, process review to identify cause of exceedance this review is to be

[11] Grassy Mountain Mine Project Ecological Risk Assessment for Proposed Tailings Storage Facility, SLR, August 2023. Appendix H of the Consolidated Permit Application.
[12] Ibid Page 5

documented and submitted to DEQ within 15 days of the exceedance, and use of additional deterrents to reduce wildlife attraction to the TSF. Cyanide concentrations over 30 mg/L trigger system shut down, notification to DEQ within 24hrs, process review requiring a full review of the system, what caused the exceedance and measures put in place to ensure this situation does not occur in the future. This incident report is to be completed and submitted to DEQ within 15 days of the exceedance.

The assessment did not evaluate risk to wildlife incidentally ingesting contaminated soils and sediments. The Tailing Storage Facility will create a large open area of fine mill tailings and ponded process water during operations. This will provide a very attractive habitat for wildlife. The Oregon DEQ risk-based concentration (RBC) for soil ingestion is 0.98 mg/kg for birds (ODEQ, 2020, Table 1a). This RBC establishes both a water and solids acceptable level of 1 ppm. Monitoring is comprehensive in terms of cyanide species (WAD, Total, free) when the material leaves the detoxification tank to confirm the characteristics of the material being bench applied in the tailings storage facility and ultimately what will be collected in the supernatant pond. Total CN- monitoring is appropriate to detect accumulation and movement of iron and other metal cyanides while WAD and free cyanide monitoring will identify exposure potential.

The permittee shall deploy security cameras with day and night capabilities in strategic locations to monitor and record wildlife activity during both the day and night to identify potential species that may not have been previously identified in potential wildlife exposure scenarios. The recordings will be analyzed and the type and number of species using the area will be reported back to DEQ quarterly.

3.2.4 Petroleum hydrocarbons

The proposed mine will utilize diesel powered trucks and equipment for moving ore, waste rock, and backfill material. The plan also identifies a vehicle wash, fuel storage facility and maintenance shop. The fuel storage facility is designed to capture potential spills and releases. The vehicle wash pad will include an oil water separator to capture potential releases at that place. However, releases outside of these structures are anticipated to either seep into the soil or runoff into the water capture system (Catchment Pond and Reclaim Pond). The permittee shall have a spill plan for addressing the releases as required in their separate 1200-Z stormwater permit, however this permit will include monitoring of the water capture system to ensure any of these contaminants that do make it into this system are identified and addressed thus reducing potential exposure to wildlife that access the site. Because the 1200-Z permit only covers the areas exposed to stormwater, this permit requires monitoring of the underground station sump water to ensure appropriate measures are carried out in the underground workings to address any potential spills or releases of petroleum hydrocarbons. The thresholds identified in the permit are derived from ecological risk values.

3.3 Permit Limits

3.3.1 Site limits

The permit prohibits the processing, storage or disposal of material from other mines or mineral extraction activities other than what is extracted from the Grassy Mountain Mine. This restriction is in place to prevent foreign material or other contaminants that were not identified or evaluated in the development of this permit. This permit is designed to ensure the protection of public

health, and the environment based on the identified ore and processing information presented in the permittee's application information and is not intended to encompass all potential contaminants from ores extracted from other locations.

3.3.2 Required Practices

The permit requires the permittee to conduct all mining operations in a manner that minimizes environmental damage through the use of best available, practicable and necessary technology as required in ORS 517.956(1). This may require Grassy Mountain Mine to update or change practices during the life of the mine to ensure their system is incorporating appropriate technologies. All changes must be approved in writing from DEQ prior to implementation.

3.3.3 Surface Water Protection

The limits and monitoring requirements presented in this permit were developed with the understanding that this site will not discharge to surface water bodies. Any discharge to a surface water body would require additional review, different limits and other monitoring requirements to ensure the protection of water quality standards. As such, the permit prohibits discharging to surface water bodies.

3.3.4 Groundwater

DEQ must ensure the permitted activities comply with Oregon's groundwater protection regulations under OAR 340-040 and the chemical mining requirements in OAR 340-043-0050. These regulations are intended to protect groundwater quality by preventing unnecessary degradation from new or expanded pollution sources. DEQ has determined this facility could adversely affect groundwater quality if proper management activities are not implemented.

Under OAR 340-040-0030(2) DEQ is required to impose groundwater monitoring requirements. Accordingly, the permittee must develop a Groundwater Monitoring Plan (GMP) plan that address these requirements and submit it for DEQ review and approval. The permittee must receive written approval of the GMP plan and collect at least nine quarters of data from the full background monitoring well network before beginning any mining activity. These data, combined with groundwater data collected from wells around the proposed mine site between 2013 through 2018, will be used to establish existing background groundwater conditions.

DEQ evaluated currently available data for the proposed mining activities to identify contaminants of concern (e.g., petroleum hydrocarbons, cyanide, etc.). DEQ also reviewed the proximity of adjacent watersheds, aquifers, and potential groundwater management areas to inform monitoring requirements. Background groundwater conditions and identified contaminants of concern will be evaluated alongside ecological and human health risk values to establish the groundwater monitoring parameters and their associated limits. These parameters and limits will be documented in the GMP and incorporated into the permit upon DEQ approval.

DEQ may revise these parameters of limits if new information becomes available indicating that adjustments are necessary to ensure adequate groundwater protection.

3.3.5 Underground Station Sump Water

The underground workings of the mine will consist of a cut and fill process where an access shaft is cut into the hillside sloping down to the ore body. Off this shaft the applicant anticipates five levels or stations at different elevations that will extend out to extract the ore. As the ore is extracted, a new deeper station will be constructed under the existing station. Sumps will be

constructed at each station to capture water seeping into the workings. The permittee has indicated they intend to use the water seeping into the underground workings and collecting in these sumps for all underground water needs (drilling, dust suppression, shotcrete mixing, etc.)

The permit requires monitoring the water collected in these underground station sumps to identify the volume of water collecting in the mine and any potential contaminants leaching from higher stations. Because this water is a combination of groundwater seeping into the underground workings and effluent from drilling, dust suppression, truck traffic, etc. which has the potential to adversely affect groundwater quality DEQ must require monitoring[13] (OAR 340-040-0030(2)). The contaminants of concern were identified from *Global Acid Rock Drainage Guide* by The International Network for Acid Prevention, October 2014 and site conditions. All water used for underground workings that have the potential to be released to the environment must not adversely affect groundwater quality. The permit identifies benchmarks for several parameters. With proper management and maintenance of the underground equipment there should be no petroleum hydrocarbons or cyanide in this water. The pH may see changes based on the phase of work occurring (more acidic during waste rock and ore removal and more basic during placement of shotcrete and backfill). Regardless of the work occurring, the permittee must conduct activities in a manor that is protective of groundwater quality. The permit benchmarks were derived form a combination of aquatic risk values for cyanide, petroleum hydrocarbons, and the specific benzene, toluene, ethylbenzene, and xylenes (BETX) compounds. The values identified for pH were established by considering some natural attenuation that appears to accrue in this area. These levels were selected because any water reaching these underground station sumps or passing below these sumps will flow directly into the aquifer with potential exposure to cattle, wildlife, and aquatic species in seeps as well as humans drinking the groundwater. The permit requires monitoring for other inorganics but has not established action limits. DEQ intends to implement adaptive management of this water to address potential water quality concerns. DEQ will review the monitoring results and make any necessary plan or permit modifications.

3.3.6 Wildlife Protection

As required in ORS 517.956(2)(a) the permittee must maintain an objective of zero wildlife mortality. All chemical processing solutions and associated waste streams shall be managed to preclude access by wildlife or maintained in a condition that is not harmful to wildlife.

3.3.7 Industrial Solids and Cemented Rock Fill Containing Waste Rock

The primary industrial solids generated during the mining process include mine tailings and waste rock. The tailings will be deposited into the tailing storage facility and the waste rock will be used in the cemented rock fill. The cemented rock fill refers to the process selected for backfill of the production drifts. The cemented rock fill (CRF) consists of a binder mixed with aggregate (basalt or waste rock). Based on the characterization data presented in Grassy Mountain Cemented Rock Fill Characterization Report, (SRK Consulting, October 2022), a CRF mixture with a binder, a mixture of fly ash and/or cement, with percentage of 7% would increase the neutralization capacity of the CRF which in turn, will reduce the potential for waste rock to generate acid. The cemented rock fill potential effects on groundwater was studied and the

[13] OAR 340-040-0030(2) The Department shall review and evaluate appropriate technical information and reports submitted by permitted sources to determine the potential for adverse impacts to groundwater quality. Where there is a likely adverse groundwater quality impact, the Department shall require groundwater quality protection program:

results are shown in the Grassy Mountain Cemented Rock Fill Characterization Report (SRK Consulting, October 2022). The volumes of the components of the CRF mixtures will be reported to DEQ as part compliance to ensure that the CRF is placed in manner that will present minimal risk to groundwater.

3.3.8 Ore Mill Discharge

The permittee intends to process the ore on site to extract the precious metals and cast doré bars, a high concentration of gold that will be shipped to an off-site refinery for further purification. This processing will occur in the Mill which will produce the mine tailings that will consist of a slurry of crushed ore and process water. This slurry will pass through a detoxification tank that is designed to significantly reduce the cyanide concentration and will receive lime to adjust the pH. The permit requires monitoring of this discharge before it is released into the Tailings Storage Facility to ensure it is not creating a hazard for wildlife that would be attracted to the open beaches or water and can penetrate the site's fence line (such as birds and smaller mammals). This is especially a concern due to the mine's location in the high desert. The Tailings Storage Facility will have standing water and open beaches of fine mine tailings will be a strong attractant to migratory birds and other waterfowl. Waterfowl seek out sandy/gravely beeches to ingest the aggregate, which they store in their gizzards to help grind their food. As these stones are worn down into finer particles, the birds fully consume them along with their food making them more susceptible to elevated concentrations of contaminants in this material. The limits identified in the permit are based on ecological risk values for both solids and liquid exposures.

3.3.9 Reclaim Pond and Catchment Pond

The permittee's application documents indicate that the process water that drains from the tailing's storage facility will be captured in the Reclaim Pond and reused in the Mill. Surface water from the Mill site will be captured in the Catchment Pond and will also be used as process water in the Mill. Because the site is in the high desert any standing water will attract wildlife. As such the parameters identified in Table A3 of the permit were identified as contaminants of primary concern for potential wildlife that may encounter this water, and the limits are based on ecological risk values.

Water from the mill is prohibited for use in the underground workings unless it meets background water quality standards. This is in accordance with Oregon's groundwater protection regulations in OAR 340-040.

3.3.10 Reuse of Industrial Wastewater

The permittee has indicated they intend to reuse process water for mine workings. The reuse of process water is permissible for activities within the Mill provided the water is of such quality that it does not create health concerns for the workers exposed to the water or cause environmental degradation.

The underground workings of the mine will operate at or below the groundwater level. Any liquid released in the underground workings would flow directly into the aquifer. As such the permit prohibits the use of Mill process water or any water other than underground station sump water or groundwater for drilling, dust suppression or other water used in the underground workings.

3.3.11 Zero Discharge
Per the project's environmental analysis and permitting application, the permittee identified this project as a zero-discharge site and has applied for a water pollution control facility (WPCF) permit. As stated in OAR 340-043-0080(1), Facilities permitted under either a WPCF or NPDES permit shall not discharge wastewater or process solutions to surface water, groundwater or soils, except as expressly allowed by the permit.

3.3.12 Reopener Condition
This permit is drafted using the data collected as part of the mine exploration. There is potential for the mine to encounter other materials or conditions that were not originally identified during the permit development. It is also possible new research may identify other conditions or contaminants of concern. DEQ reserves the right to make changes to this permit to address these new discoveries in the future.

3.3.13 Consolidated Permit condition
This permit is one of several permits needed to construct, operate and close a mine in Oregon. This condition is included in all state issued permits from each of the different state agencies involved in the permitting process for this consolidated permit.

4. Schedule B: Monitoring and Reporting Requirements

Schedule B of the permit describes the minimum monitoring and reporting necessary to demonstrate compliance with the proposed data collection and limits. Detailed monitoring frequency and reporting requirements are identified for each waste stream and management system. The monitoring points were identified based on potential wildlife exposure (tailings storage facility, catchment pond, and reclaim pond) and potential releases to the environment (underground workings). The required monitoring, reporting and frequency for many of the parameters are based on DEQ's monitoring and reporting matrix guidelines, potential risks, permit writer judgment, and to ensure the needed data is available for potential future permit renewal. The permit requires monitoring of the material placed in the tailing storage facility to create a record of the material held on this site. The permit also requires monitoring of any groundwater or surface water pumped down into the mine for underground workings. This data in conjunction with the required monitoring of the water accumulating in the underground sumps will be used to account for the underground water balance. In addition, site specific weather monitoring and reporting is required to accurately account for the site's surface water balance. Including water loss through evaporation and accumulation through precipitation.

4.1 Conformance with the site's OM&M plan

The permit holder must develop an Operations Monitoring and Management (OM&M) plan for agency review and approval prior to any land disturbance activities. A detailed summary of required topics for this document is provided in Schedule D of the permit. This clause is included in Schedule B as a large portion of the OM&M plan addresses monitoring activities. It is also included to reiterate that the management activities detailed in the OM&M Plan are enforceable permit conditions.

4.2 Reporting Requirements

Table B1 of the permit provides a summary of the reporting requirements, when the reports are due and how they are submitted.

The subsequent sections identify each of the reporting requirements for each of the compliance points. These include the Underground water supply (Table B2), waste rock used to fill mined portions of the underground workings (Table B3), Underground station sump monitoring (Table B4), Site weather monitoring (Table B5), Tailing storage facility monitoring (Table B6), process water pond monitoring (Table B7), and Groundwater monitoring (Table B8).

5. Schedule C: Solid Waste Requirements

The tailings are a solid waste and fit into the regulatory category of Industrial Solid Waste. Tailings as defined by OAR 340-043-0010(5) means the spent ore resulting from the milling and chemical extraction process. Industrial solid waste is defined as solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under ORS Chapters 465 and 466 or under Subtitle C of the federal Resource Conservation and Recovery Act. This term does not include construction/demolition waste; municipal solid waste from manufacturing or industrial facilities such as office or "lunch room" waste; or packaging material for products delivered to the generator. Solid waste generated at the proposed mine apart from the tailings and waste rock must be disposed of at a regulated Subtitle C (hazardous waste) or Subtitle D (municipal solid waste) landfill.

The waste rock is a discarded material generated from the mining process and is recognized as a solid waste per Oregon Administrative Rules. The waste rock generated from the mining operations does not meet the definition of clean fill as the majority of the waste rock has the potential to generate acid rock drainage as discussed in the CPA. The waste rock will be reused within the cemented rock fill. Beneficial uses of solid waste using OAR 340-093-0260 (Beneficial Use of Solid Waste) through 340-093-0290 (Case-Specific Beneficial Use Review Procedures) rules establish criteria and procedures for determining if the use of a solid waste is a beneficial use. OAR 340-093-0270 (Standing Beneficial Use Determinations) lists approved standing beneficial uses of solid waste. DEQ may approve case-specific beneficial uses of solid waste according to the criteria and procedures in OAR 340-093-0280 (Case-Specific Beneficial Use Performance Criteria) and 340-093-0290 (Case-Specific Beneficial Use Review Procedures). The waste rock volume removed from the production drifts can be managed within the cemented rock fill.

Another critical aspect of the solid waste permitting requirements include implementation of Oregon administrative rules requiring all solid waste disposal facilities to demonstrate that the permittees will have the financial resources to properly close their facilities when its operational life is over. In solid waste rules, this is referred to as financial assurance. This is similar but not to be confused with reclamation bonding, which assurances are defined in the chemical mining rules. Reclamation bonding refers to the financial bonding required by a chemical mining facility that is intended to provide adequate resources to cover the costs of mine reclamation and a credible accident. The amount of financial security required is to be determined at the time permits are issued and adjusted as necessary during site operations. This is an annual process

referred to as financial assurance recertification. DEQ's lack of long-term experience with chemical mining activities makes it difficult to confidently estimate the full range of problems that could develop after chemical mining activities have ceased. This bond may not be adequate to address the full range of costs for protection and restoration of the environment if the permittee defaults or provide the appropriate emergency response in the case of an accidental release. The financial assurance requirements establish several mechanisms for solid waste permittees or landfill owners to demonstrate financial resources will be available when needed.

5.1 Authorized Wastes

This condition describes the authorized wastes that may be disposed of within the TSF.

5.2 Authorization of Activity

This condition describes the procedure to authorize activities prior to operations of the mine.

5.3 Prohibited Activities

This condition describes the prohibited activities related to solid waste as required in 40 CFR 258.20 (b) and OAR 340-101.

5.4 Discovery of Prohibited Activities

This condition describes the procedures to follow if prohibited activities are discovered.

5.5 Spills

This condition describes the notifications process to follow if spills of certain amounts of oil or hazardous material occur at the site.

5.6 Record Keeping and Reporting - Operations

This condition describes the how record keeping and reporting will be conducted for the solid waste operations of the mine.

5.7 Site Construction and Design

This condition discusses the overall requirements for the permittee to follow during site design and construction.

The tailing storage facility (TSF) will be a geomembrane lined impoundment with primary and secondary containment that will contain approximately 3.64 million short dry tons (Mst) of processed tailings. The loading of the impoundment will occur at a rate of approximately 248,200 tons per year (Ausenco, November 2021). The TSF will be constructed using staged downstream construction methodology with heterogenous rock fill and soil fill. There are four stages of TSF construction presented; Stage 1A, Stage 1B, Stage 2, and Stage 3. The operational life of the tailings storage facility is estimated at 15 years. The surface area at the final stage of development will cover an approximate area of 108 acres. The maximum height of the north

embankment is 50 feet and the maximum height of the west embankment is 30 feet. The tailings will be discharged through subaerial discharge spigots into the supernatant pool, which will not be in contact with the earthen dam.

The lining system for the TSF from top to bottom includes a 6-inch-thick filter layer, which will help filter out particles from the tailings, a 18 inch thick drainage layer that will drain the tailings to the reclaim pond, then an 80 millimeter thick high density polyethylene (HDPE) geomembrane liner, then a 300 millimeter thick geosynthetic clay liner (GCL). This will all be placed on top of 6- to 12-inch-thick native prepared subgrade. Perforated pipes will be placed with the drainage layer.

The TWRSF will be constructed to store approximately 0.27 Mst of waste rock generated during operations. The waste rock will be transported from the Mine Portal to the TWRSF. The TWRSF will reach its maximum storage of approximately 0.27 Mst at Year 4 of operations. The waste rock from the TWRSF will then be used within the cemented rock fill in the underground workings of the mine. The lining system for the TWRSF will be the same as TSF.

Leak detection will be in the form of 2-inch diameter schedule 80 PVC piping below the primary collection pipes and primary geomembrane. Along the alignment of the leak detection pipes, an additional layer of 80-millimeter HDPE geomembrane liner will be installed below the GCL.

Tailing storage facility design criteria was established within Detailed Tailing Storage Facility and Temporary Waste Rock Storage Facility (Golder, October 2021). The design meets the regulatory criteria in the following Oregon Administrative Rules: Dam Safety Regulations OAR 690, Division 20; Chemical Process Mine Regulations, OAR 632, Division 3; Chemical Mining, OAR Chapter 340, Division 43; and Chemical Process Mining Consolidated Application and Permit Review Standards, OAR 635, Division 420. The Department also maintains that the proposed mine must meet all applicable solid waste rules in OAR Chapter 340, Division 93, 95, 96, and 97, but where rules were unclear, the more specific standards of Division 43 were followed.

The permittee must prepare an updated and detailed construction quality assurance (CQA) plan that verifies and documents proper construction of all mine components. The CQA plan must describe the proposed measures for monitoring the quality of materials and work performance. CQA plan elements pertaining to foundations, subgrades, embankments, soil barriers, geosynthetics must be developed and administered by a Professional Engineer with current Oregon registration and experience in the technical area. The completed construction must be reviewed and certified by a third-party.

5.8 Reclamation Construction and Continued Maintenance

This condition describes the conditions for reclamation and closure of the mine. The permittee has proposed the following final cover from bottom to top:

- Prepared tailings surface,

- 60 mil double-sided textured (DST) linear low-density polyethylene (LLDPE) geomembrane
- Geosynthetic drainage layer or 12” thick drainage layer
- 12 ounce per square yard (oz/yd2) non-woven geotextile, and
- Drainage layer piping if needed to meet design requirements
- Vegetative/topsoil layer consisting of a 12-inch soil layer, which is capable of supporting vegetation.

The tailings will be graded to compensate for estimated differential settlement and maintain positive drainage. Final (post-settlement) slopes must range between two (2) percent and thirty (30) percent.

DEQ understand that the material in the TSF will remain exposed for one year prior to covering. This time period is designated to ensure that the moisture in the tailings is adequately drained prior to installation and allows the surface material to be reworked and prepared by heavy machinery. DEQ is requiring additional management activities to address the potential hazards and risks to wildlife posed by the exposed material during the one-year period of reduced activity on the site prior to the cover installation.

5.9 Financial Assurance

This condition discusses the requirements for the permittee. The permittee must submit a financial assurance plan that describes in detail the method and schedule for providing for or accumulating the appropriate amount of funds to ensure proper closure and post-closure care or implementation of corrective action, as applicable. And the permittee must show that the financial assurance mechanisms for closure, post-closure care and corrective action funds will be available in a timely fashion when needed.

The financial assurance plan should include written cost estimates for the Final Engineered Site Reclamation/Closure Plan and Final Engineered Post-Closure Plan, or the "worst case" closure and post-closure scenarios.

Based on the risks and information presented in the environmental evaluation and the liability presented by the construction of the tailings storage facility, financial assurance in bonds accessible by permitting agencies shall be adequate to pay all costs associated with a worst-case scenario which result in the release of contaminants into the environment. The types of scenarios are described a release of contaminants in the Appendix B of the Environmental Evaluation, Analysis of Credible Accidents (Stantec August 16, 2024). These scenarios describe potential credible accidents and must be accounted for in the financial assurance submittals.

5.10 Reporting Requirements

The permittee will be required to submit a site development plan or facility construction plan. This plan will document the framework for establishing overall goals for facility design, construction, operation, and environmental monitoring.

The permittee will be required to submit construction documentation for each stage of construction. The construction documentation will consist of design reports, construction quality assurance plan, and construction completion reporting.

The permittee will be required to submit a Financial Assurance Plan that describes compliance with the Financial Assurance Requirements set in the permit. Recertification of the financial assurance will be required annually

6. Schedule D: Special Conditions

The proposed permit contains the following special conditions. The conditions include the following:

6.1 Emergency Response and Public Notification Plan

A requirement to develop and submit an emergency and spill response plan or ensure the existing one is current per General Condition B.6 in Schedule E.

6.2 Operations, Monitoring, and Management Plan

A condition requiring the permit holder to develop and maintain an operations, monitoring, and management (OM&M) plan that meet the requirements for this document. This plan must address how the facility will conduct the required monitoring as well as water management during both long- and short-term system shut down, identify if any water quality standards are necessary for water returning to the mill, as well as contingency plans for water management should the dewatering of the underground workings produce more water than projected, and identify how effluent from the wet scrubber will be managed. This plan will be subject to public notice before final agency approval. The permittee must have written approval of their OM&M plan before any reuse of industrial wastewater at the mine. Once the plan is approved all conditions in the plan are enforceable permit conditions. The plan must be updated annually to ensure the plan is current and addresses any changes that may be necessary after startup of operations.

DEQ is requiring the permit holder to develop a Tailings and Waste Rock Management section in the OM&M plan. The OM&M plan must include a description of the methodology of the ongoing sampling of the tailings for characterization and volumetric/tonnage reporting of cemented rock fill containing waste rock. The plan will focus on the solids management, storage, handling, and transportation of all solids that enter and leaves the Site. The Plan shall consider current conditions, changes to site operations and physical conditions. A revised OM&M plan must be approved prior to initiating mining or backfilling activities not previously approved.

Plan for controlling runoff and run on to be managed by the 1200-Z permit.

6.3 Groundwater Reporting

This condition requires the permittee to submit and maintain a groundwater monitoring plan that meets DEQ requirements. The permittee must monitor and submit surrounding groundwater characteristics each year. This would include documenting groundwater elevations, gradients, characteristics, and management activities during the previous calendar year.

7. Schedule E: WPCF General Conditions

Schedule E contains the following general conditions that apply to all WPCF permittees.

- Section A. Standard Conditions
- Section B. Operation and Maintenance of Pollution Controls
- Section C. Monitoring and Records
- Section D. Reporting Requirements
- Section E. Definitions