

**CALICO RESOURCES USA CORP.**

**GRASSY MOUNTAIN MINE PROJECT  
MALHEUR COUNTY, OREGON**

**PETROLEUM-CONTAMINATED SOILS MANAGEMENT PLAN**

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*Submitted to*

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## **1 INTRODUCTION**

This Petroleum-Contaminated Soils Management Plan (PCS Plan) has been prepared in support of the Grassy Mountain Mine Project (Project) located in Malheur County, Oregon, and has been included as part of the Consolidated Permit Application.

The Project would not treat or dispose of PCS on site; therefore, this PCS Plan has been prepared to only describe the storage activities of any PCS prior to the removal and transport to an off-site facility for appropriate management.

### **1.1 Resource Study Area**

The Project is located approximately 22 miles south-southwest of Vale (Figure 1) and consists of two areas: the Mine and Process Area and the Access Road Area (Permit Area) (Figure 2). The Mine and Process Area is located on three patented lode mining claims and unpatented lode mining claims that cover an estimated 886 acres. These patented and unpatented lode mining claims are part of a larger land position that includes 419 unpatented lode mining claims and nine mill site claims on lands administered by the Bureau of Land Management (BLM). All proposed mining would occur on the patented claims, with some mine facilities on unpatented claims. The Mine and Process Area is in all or portions of Sections 5 through 8, Township 22 South, Range 44 East (T22S, R44E) (Willamette Meridian).

The Access Road Area is located on public land administered by the BLM, and private land controlled by others (Figure 2). A portion of the Access Road Area is a Malheur County Road named Twin Springs Road. The Access Road Area extends north from the Mine and Process Area to Russell Road, a paved Malheur County Road. The Access Road Area is in portions of Section 5, T22S, R44E, Sections 3, 10, 11, 14, 15, 21 through 23, 28, 29, and 32, T21S, R44E, Sections 1, 12 through 14, 23, 26, 27, and 34, T20S, R44E, Sections 6 and 7, T20S, R45E, and Sections 22, 23, 26, 35, and 36, T19S, R44E (Willamette Meridian). The width of the Access Road Area is 300 feet (150 feet on either side of the access road centerline) to accommodate possible minor widening or re-routing, and a potential powerline adjacent to the access road. There are several areas shown that are significantly wider than 300 feet on the Permit Area Map (Figure 2), which are areas where the final alignment has not yet been determined. The final engineering of the road will be consistent throughout, and within the Permit Area. The Access Road Area also includes a buffer on either side of the proposed road width for the collection of environmental baseline data. The road corridor will be approximately 30 feet wide, which includes a 20-foot wide road travel width (ten feet on either side of the road centerline), two-foot wide shoulders on each side of the road, minimum one-foot wide ditches on each side of the road, and appropriate cut and fill. The Access Road Area totals approximately 876 acres.

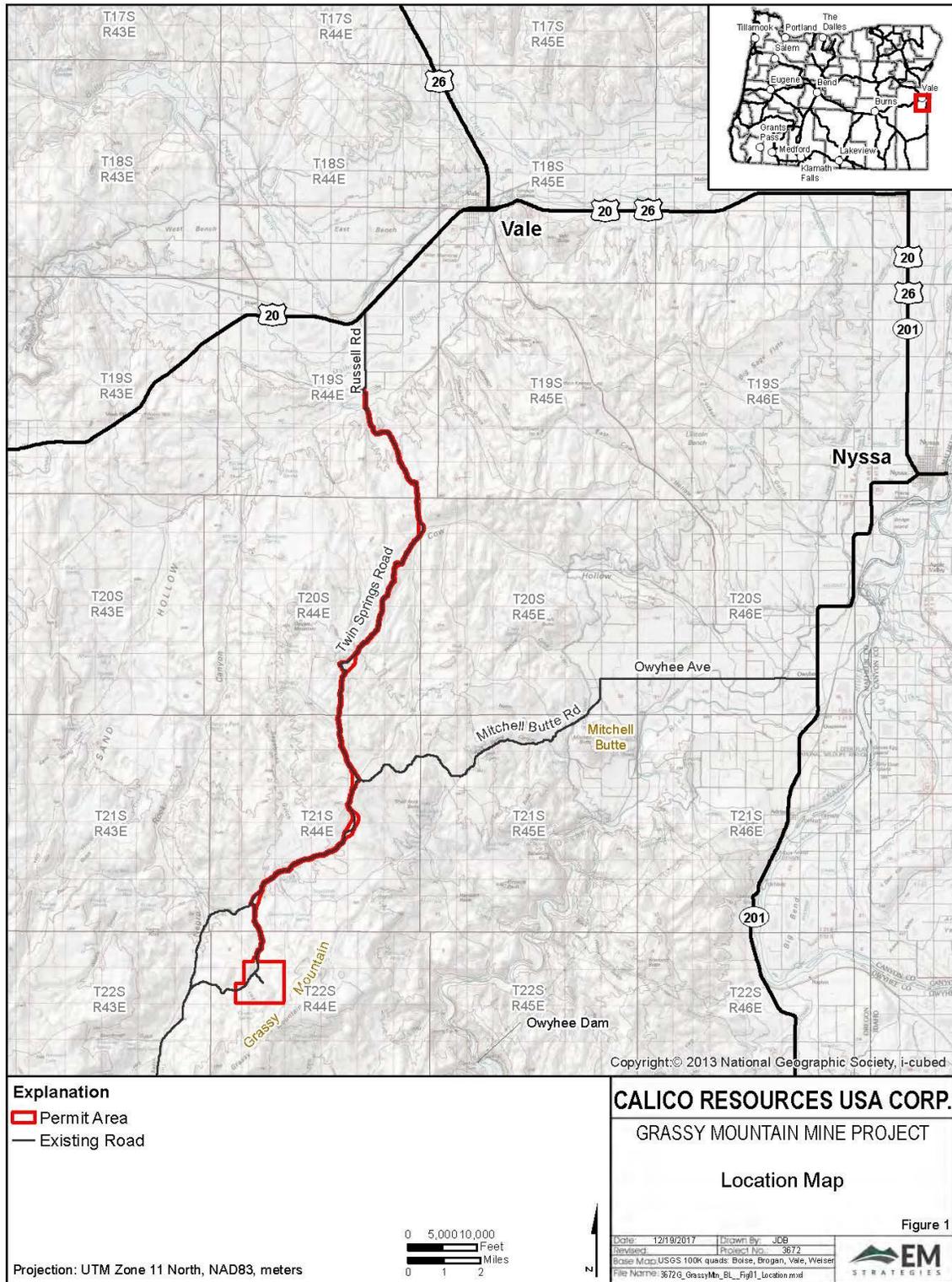


Figure 1. Location Map

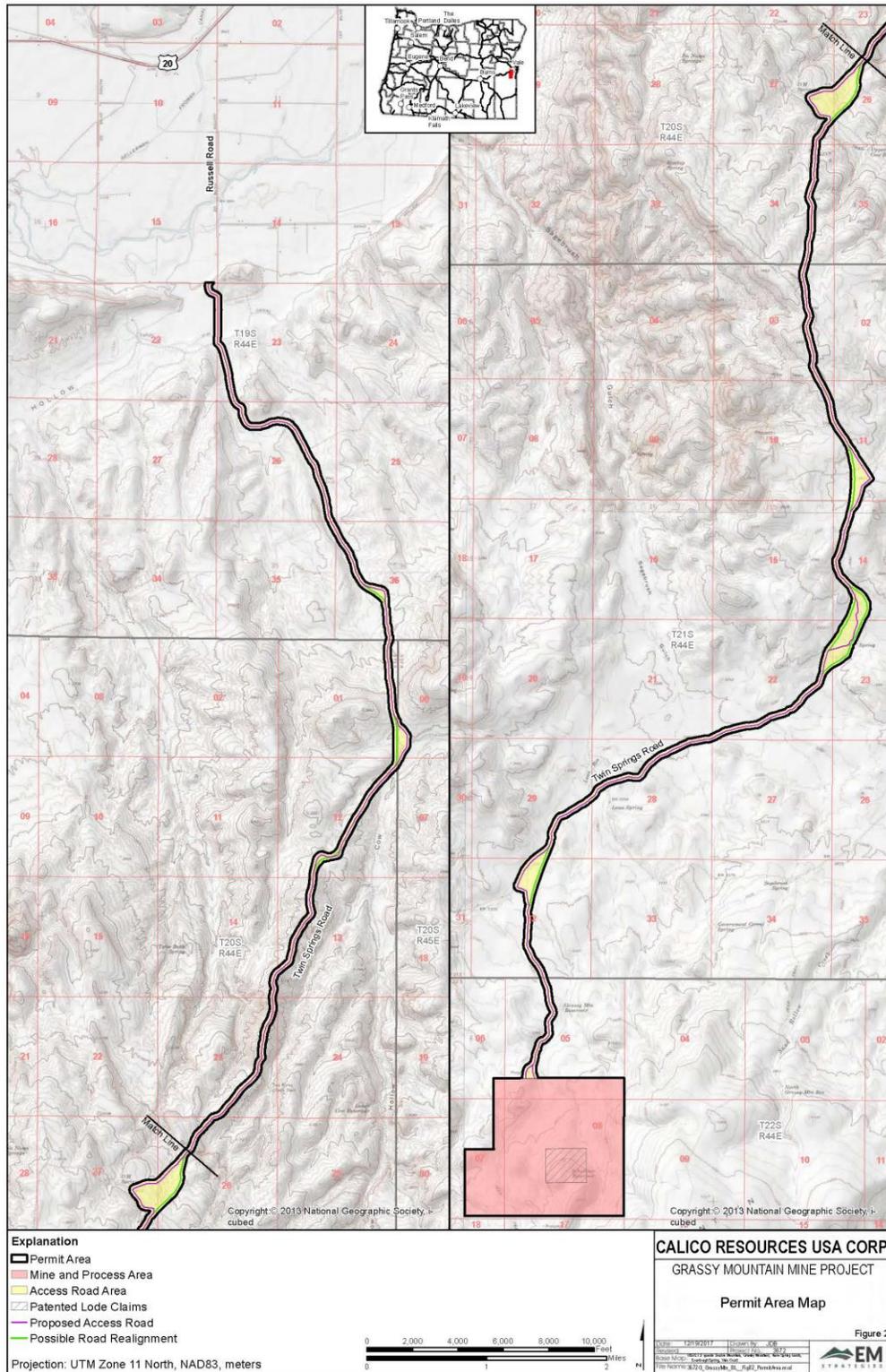


Figure 2. Permit Area Map

## 2 PROJECT DESCRIPTION

Calico Resources USA Corp. (Calico) plans to construct, operate, reclaim, and close an underground mining and precious metal milling operation. In general, the proposed mining and precious metal processing operations will consist of an underground mine and ore processing facilities, including a conventional mill and tailings storage facility (TSF) and a waste rock storage area (WRSA), as well as other support facilities. The Project will include the following major components:

- One underground mine;
- One WRSA;
- One carbon-in-leach (CIL) processing plant;
- One borrow pit area;
- One TSF;
- Run-of-mine ore stockpile;
- One reclaim pond;
- A water supply well field and pipeline, associated water delivery pipelines, and power;
- A power substation and distribution system;
- One ventilation shaft;
- Access and haul roads;
- Ancillary facilities that include the following: haul, secondary, and exploration roads; truck workshop; warehouse; stormwater diversions; sediment control basins; reagent and fuel storage; storage and laydown yards; explosive magazines; fresh water storage; monitoring wells; meteorological station; an administration/security building; borrow areas; growth media stockpiles; a landfill; and solid and hazardous waste management facilities to manage wastes; and
- Reclamation and closure, including the potential development of an evaporation cell for the TSF.

## 3 POTENTIAL PCS SOURCES

The following are identified as potential sources of PCS at the Project:

- Maintenance area which includes an equipment maintenance area and wash bay;
- Fuel storage depot; and
- Accidental spills from stationary and mobile equipment.

The primary source of PCS at the Project is anticipated to result from accidental spills. The principal sources of hydrocarbon spills that will be managed under this PCS Plan include diesel fuel spills, motor/lube oil spills, and hydraulic fluid spills. Motor/lube oil and hydraulic fluid spills are associated with equipment failures, such as line ruptures, and thus are relatively infrequent.

Calico will transport, store, and use a variety of fuels and other petroleum products. A summary of these materials expected to be present at the site is provided in Table 1.

**Table 1. Anticipated Petroleum Products**

Product	On-site Storage	Anticipated Stored Amount	Estimated Consumption Rate	Shipment Frequency (per week)
Diesel – Truck Shop	30,000 gallons	Up to 30,000 gallons	6,000 gpd	1
Ammonium Nitrate/Fuel Oil	60-ton silo	Up to 60 tons	8 tons/day	1
Gasoline	10,000 gallons	Up to 10,000 gallons	250 gpd	1
30WT Motor Oil	4,000 gallons	Up to 4,000 gallons	15-20 gpd	1
Used Motor Oil	4,000 gallons	Up to 4,000 gallons	15-20 gpd	1
Antifreeze	2,000 gallons	Up to 2,000 gallons	1 G15 gpd	1
Hydraulic Fluid	2,000 gallons	Up to 2,000 gallons	10-15 gpd	1
90WT Gear Lube	2,000 gallons	Up to 2,000 gallons	10-15 gpd	1
Waste Antifreeze	2,000 gallons	Up to 2,000 gallons	10-15 gpd	1
Grease bins	4 x 120-gallon totes, 4 x 30-gallon drums	Up to 4 totes, up to 4 drums	5-10 gpd	1

gpd – gallons per day

An Emergency Response Plan has been prepared for the Project, which includes measures to take in case of an accidental spill. Safety Data Sheets for each chemical will be maintained at appropriate locations at the Project site.

### 3.1 Gasoline PCS

Soil contaminated with gasoline will be managed separately from other PCS sources and as a hazardous waste until the analytical results confirm whether or not the material is characterized as hazardous.

In the event of a spill, liquid gasoline will be recovered by safe and practical means prior to excavating the contaminated soil. Gasoline PCS, including the sorbent material, will be placed in a roll-off bin labeled to identify the contents and sampled and analyzed according to this PCS Plan. If the analytical results indicate the material is not hazardous, the bin contents will be shipped to the licensed off-site disposal site for appropriate management. If the results show the material to be hazardous, the material will be treated as a hazardous waste and shipped off site to a licensed facility in accordance with federal, state, and local regulations.

### **3.2 Hazardous Waste Determination**

PCS may be determined to be a characteristic hazardous waste when it exhibits any of the following characteristics as defined in 40 Code of Federal Regulations Section 261: ignitability; corrosivity; reactivity; or toxicity. Calico will determine whether a shipment of PCS meets any of the hazardous waste characteristics during pre-shipping sampling and route the load to the appropriate final disposal site based on the determination.

## **4 INTERIM PCS MANAGEMENT**

### **4.1 Interim PCS Management Strategy**

Calico will collect PCS from the identified facilities and accidental spill sites and place the material into a roll-off bin provided by a licensed contractor. The material will be sampled in accordance with federal, state, and local regulations, and contractor requirements to characterize the material prior to shipping off site.

### **4.2 PCS Storage Area**

The PCS storage area will consist of a concrete pad with six-inch walls to contain the roll-off bin and allow for removal of filled roll-off bins and placement of empty roll-off bins. The PCS storage area is topographically constrained from naturally draining into nearby surface water bodies or drainages.

The licensed contractor will provide a 20-cubic yard roll-off bin with either a lid or a tarp that seals down to store the PCS on site. The roll-off bin will be placed on a concrete pad with applicable warning signs to prevent unauthorized placement of materials other than PCS in the bin. The roll-off bin will be picked up by a licensed contractor and transported off site for management at an appropriate facility. The roll-off bin will be covered appropriately by the transportation contractor.

### **4.3 Estimated Volume**

Calico estimates that up to 20 cubic yards of PCS will be generated annually.

### **4.4 Best Management Practices**

Protection from groundwater infiltration is provided by placing the roll-off bin on a concrete pad. Protection of surface water is provided by situating the PCS storage area away from storm water drainage ditches. Warning and informative signage will deter unauthorized placement of non-PCS materials.

Good housekeeping best management practices include routine cleanup of PCS accidentally spilled onto the concrete pad containment, as well as cleanup of vehicle track-out, both of which will be placed back into the PCS storage area.

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#### **4.5 Sample Collection and Analytical Protocols**

The environmental staff at the Project will conduct the sampling in accordance with established protocols by taking a composite sample comprised of multiple sub-samples of PCS in the roll-off bin. No less than one composite sample will be collected for each 20 cubic yards of PCS. The samples will be placed in a laboratory-prepared container suitable for the collection of soil samples. The containers will be filled to minimize head space and be sealed with an airtight lid. Sampling tools will be decontaminated between each composite interval. The samples will ship under a chain-of-custody to an outside laboratory for analysis.

#### **4.6 Record Keeping**

Calico will maintain a record of the hazardous waste determination(s) as applicable. The volume of PCS added to the roll-off bins, the volume transported off site, and shipping manifests will be recorded quarterly and kept for a minimum of seven years.

### **5 CONTINGENCY PLAN**

PCS will not be disposed of on site; therefore, there is no contingency plan for the storage of the PCS or the off-site transport. A licensed contractor will transport the PCS roll-off bin to an approved disposal facility.

### **6 CLOSURE AND RECLAMATION**

Calico's management strategy is to send PCS for off-site disposal using a licensed contractor. As such, no PCS will remain on site that will require special closure plans. The concrete pad will be closed in a manner similar to the other concrete pads and foundations that will be constructed at the Project. The concrete pad will be broken using a track-hoe mounted hydraulic hammer or similar methods and buried in place under approximately three feet of material in such a manner to prevent ponding and to allow vegetation growth. After demolition and salvage operations are complete, the disturbed area will be covered with approximately 12 inches of growth media and revegetated.

### **7 REFERENCES**

Calico Resources USA Corp. (Calico). 2019. *Grassy Mountain Mine Project, Malheur County, Oregon, Emergency Response Plan*.