

Pinto Valley Mine
Aquifer Protection Permit No. P-100329
Place ID 838, LTF No. 79098
Significant Amendment

I. Introduction:

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an Aquifer Protection Permit (APP) for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards (AWQS) at the Point of Compliance (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

II. Permittee & Facility Location:

Pinto Valley Mining Corp.
2911 N. Forest Service Road 287
Miami, AZ 85539

III. Facility Description:

Mining in the Globe-Miami Mining District began in 1874. In recent history, the Pinto Valley Mine (PVM) was owned and operated by Magma Copper and was purchased by Broken Hill Proprietary Company Ltd. (BHP) in January 1996. The mine was purchased by Pinto Valley Mining Corp. (PVMC) in October 2013.

Under the current APP, PVMC is authorized to operate ore crushing and concentrating operations, dump leaching, solvent extraction and electrowinning (SX/EW) operations, tailings storage facilities, waste dumps, process solution ponds, stormwater runoff ponds, and ancillary maintenance and operation facilities such as a wastewater treatment plant and solid waste landfill. PVMC mines low-grade copper and molybdenum ore, including millable and leach-grade ore. The millable ore is crushed and concentrated on-site. Copper and molybdenum concentrates are shipped off-site for smelting and refining. Low-grade ore is deposited on the Low-grade Ore Leaching Piles in the dump leaching area known as Gold Gulch. Raffinate solutions consisting of weak sulfuric acid are sprayed over the low-grade ore and the resulting "pregnant leach solution" (PLS) is collected in a double lined facility with a leak collection and recovery system. The solution is pumped to the SX/EW plant to produce copper cathodes.

IV. Amendment Description:

The proposed modifications to existing facilities identified below are necessary due to the need for additional waste rock dump capacity during the remaining life of mine (LOM). This amendment is for the following purposes:

- Evaluate the effects of the planned construction activities described within this permit

application on TSF3, and update the stability model as part of the BADCT demonstration for the facility.

- Present an updated closure design for TSF3.
- Add the West Dump, a new discharging facility for storage of waste rock, and a non-discharging APP-exempt pipeline facility beneath the new West Dump that will collect PLS from the current leaching operation, which currently flows into GG 1 and GG 1A PLS Ponds.
- Repurpose or redesign certain existing APP-discharging facilities and associated surface water control features within the Gold Gulch drainage to accommodate the new West Dump:
 - Gold Gulch surface water controls: Primarily, divert stormwater run-on around the new West Dump.
 - Gold Gulch Dam No. 2 and Reservoir: The Reservoir will be modified to be a lined process solution pond (Gold Gulch No. 2 Process Solution Pond) with associated upgrade regulated by Arizona Department of Water Resources (ADWR).
- Decommission and close in place certain existing APP-discharging facilities and associated surface water control features within the Gold Gulch drainage to accommodate the new West Dump:
 - Gold Gulch No. 1 PLS Pond (GG1).
 - Gold Gulch No. 1A PLS Pond (GG 1A) with associated breach of the Gold Gulch No. 1A Dam, also regulated by Arizona Department of Water Resources (ADWR).
 - Lower Gold Gulch Caisson.
 - Abandonments for non-point of compliance (POC) monitoring wells and piezometers.
- Update the associated site-wide closure and post-closure estimated costs.

The permit category for this amendment was determined to be a “Significant Amendment” as per A.A.C. R18-9-A211(B)(1 & 9).

V. Regulatory Status

Currently, there are no open enforcement actions for this facility.

VI. Best Available Demonstrated Control Technology (BADCT):

The PVMC relies on engineered controls, operational procedures, and for pre-1986 facilities, water conservation/beneficial use and site characteristics to demonstrate BADCT. BADCT also includes stormwater diversion to protect APP facilities, and stormwater management for the 100-year, 24-hour storm event or the maximum saturation event (MSE).

All APP-regulated facilities have been evaluated for compliance with the requirements of A.R.S. § 49-243 and A.A.C. R18-9-A202, and have been determined to meet those requirements.

Passive Containment Capture Zone

PVMC submitted a periodic demonstration of passive containment capture zone (PCCZ) as required by the permit compliance schedule (Section 3.0). The report was titled “Pinto Valley Mine- Groundwater Modeling for Mine Extension (Revised), prepared by SRK Consulting Inc., dated May 3, 2019. This report demonstrated that the pit will continue to act as a hydrologic sink after the stabilization of the pit lake and continue to form a PCCZ as per A.R.S. § 49-243(G) to the mine facilities that rely on the PCCZ for their BADCT demonstrations. Passive containment, per A.R.S. § 49-243(G)(1), means natural or engineered topographical, geological or hydrological control measures that can operate without continuous maintenance. Monitoring and inspections to confirm performance of the passive containment do not constitute maintenance.

Based upon the updated groundwater model, the following facilities are located 100 percent within the calculated hydraulic sink: Road Crossing Pond, Northside Dump 9.3, Southside Dump 13, 19.1 Dump, North Barn Marginal Dump, and the Solid Waste Landfill.

The following facilities are partially located within the calculated hydraulic sink:

- Castle Dome Marginal Dump (92 percent)
- Southside Dump (61 percent)
- Main Dump (57 percent)
- Low-grade Ore Leaching Piles (55 percent)
- Tailing Storage Facility No. 1 and Tailings Storage Facility No. 2 (46 percent)
- Concentrator (25 percent)

All other APP facilities are located outside the PCCZ.

VII. Compliance with Aquifer Water Quality Standards (AWQS):

Facility POCs are located at the northern, western and southwestern boundaries of the Pollution Management Area (PMA). No wells are currently located on the eastern property boundary based on direction of groundwater flow, which is generally towards the northwest in the northern portion of the site and southwest in the southern portion of the site.

The permit requires that all monitoring be conducted pursuant to Sections 2.0 and 4.0. A total of 11 hazardous and non-hazardous POCs have been designed for this permit, these include both groundwater monitoring wells and groundwater spring monitoring locations.

The added facilities are within the PMA and therefore no additional POC wells were required.

VIII. Closure and Post-Closure Costs:

Closure and post-closure costs were added for the West Dump and the Gold Gulch No. 2 Process Solution Pond. Gold Gulch 1 PLS Pond, Gold Gulch 1A PLS Pond, and Lower Gold Gulch Caisson will be closed in place and the costs associated with the removal of these structures were removed.

The overall closure and post-closure cost estimate was reduced from the current \$102,866,648 to \$102,150,295, thus resulting in a net decrease in the amount of \$716,353. There was a decrease

in direct and indirect closure costs in the amount of \$1,729,443 which was primarily attributed to the reduction in regrading costs associated with TSF3 and the Low-grade Ore Leaching Piles after construction of the West Dump. There was a \$1,013,090 increase in the post-closure costs, which is attributed to costs included for 30-years of pumping co-mingled stormwater and PLS drain down from the Gold Gulch No. 2 Process Solution Pond to the Open Pit and the abandonment of all wells and piezometers.

IX. Financial Capability:

Pursuant to A.A.C. R18-9-A203.C.2, the financial assurance mechanism was demonstrated through a Performance Surety Bond for \$102,866,648 that was approved under a previous amendment which is in excess of estimated closure and post-closure cost of \$102,150,295. PVMC elected to not to submit a new financial assurance mechanism for the revised closure/post-closure costs approved under this amendment.