

Pinto Valley Mine
Aquifer Protection Permit No. P-100329
Place ID 838, LTF No. 92904
Significant Amendment

I. Introduction:

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an Aquifer Protection Permit (APP) amendment 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:

Pinto Valley Mining Corp.

III. Facility Name & Location:

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

IV. 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.

V. Amendment Description:

This request for amendment consists of the following APP modifications:

- 1- Modify the approved design of Tailings Storage Facility No. 3 (TSF3) to incorporate the construction of a toe buttress (the “TSF3 North Embankment Buttress” or “Buttress”) on the north embankment of TSF3, which has also been referred to as “3 Dam”;
- 2- Modify the storage capacity and operational description for existing seepage/stormwater retention facility West Catchment to accommodate partial burial by the footprint of the Buttress;
- 3- Modify the storage capacity and operational description for existing seepage/stormwater retention facility Slack/Conklin Pond;
- 4- Modify the closure and post-closure cost estimate to incorporate the changes listed in Amendment Description Items 1 through 3.
- 5- Correct the phreatic surface elevation Alert Level (AL) for TSF1 Piezometer C23;
- 6- Modify the phreatic surface elevation AL for TSF2 Piezometer P9; and
- 7- Correct the phreatic surface elevation AL for TSF4 Piezometer P9.

The proposed modifications to the existing facilities are necessary to comply with ADEQ’s requirements to meet minimum Factor of Safety (FOS) values for TSFs assuming Arizona Best Available Demonstrated Control Technology (BADCT) criteria.

VI. Regulatory Status

Currently, there are no open enforcement actions for this facility. A notice of violation was issued for exceedance of Alert Level 2 for liner failure on 9/30/2019. The case was closed on 01/29/2020.

VII. Best Available Demonstrated Control Technology (BADCT):

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.

VIII. 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.

IX. Closure and Post-Closure Costs:

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The site-wide closure cost estimate current APP is \$102,156,911 including \$97,787,203 in direct and indirect closure costs and \$4,369,708 in post-closure costs. The revised site-wide closure estimate is \$107,125,578, including \$75,113,029 in direct closure costs, \$27,380,806 in indirect closure costs, and \$4,631,734 in post-closure costs.

X. Financial Capability:

The current performance surety bond of \$102,866,648. An updated Demonstration of Financial Capabilities is provided to ADEQ because there is an increase to the site-wide closure cost estimate based on the post-closure configuration of TSF3 and two stormwater/seepage retention facilities with the addition of the Buttress. The performance surety bond will be increased to \$107,125,578, which is \$4,258,930 greater than the current bond amount.