

Golden Vertex Moss Mine
Aquifer Protection Permit No. P-511225
Place ID 143836, LTF No. 86823
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. Facility Location:

The facility is located in Mohave County, approximately 10 miles east of Bullhead City, Arizona, on BLM Route 7717 (Silver Creek Road).

III. Facility Description:

The Moss Mine is an open-pit gold-silver mine and associated gold recovery facilities. There are currently four (4) permitted facilities regulated under the APP program:

- 1) Phase 2 Heap Leach Pad
- 2) Phase 2 Pregnant Solution Pond
- 3) Phase 2 South Contingency Pond
- 4) Phase 2 West Contingency Pond

The Phase 1 facilities were closed as part of the Phase 2A construction. Phase 1 included a Heap Leach Pad, PLS Pond and Barren Pond. The Heap Leach Pad was rinsed with hydrogen peroxide solution to reduce the cyanide in the rinse solution to less than 200 mg/l. The spent heap leach pad material was used as under-liner fill for Phase 2A construction. The liquids in the PLS Pond and Barren Pond were evaporated. The Phase 2A facilities were constructed over the locations of the Phase 1 facilities.

IV. Amendment Description:

The purpose of this amendment is to include the Phase 3 expansion facilities that were authorized on public land administered by the Bureau of Land Management (BLM). This amendment is seeking to incorporate the design and construction of the following proposed Phase 3 APP regulated facilities:

- 3A Heap Leach Pad (HLP), Phase 1 – The 3A HLP is designed as two phases with the phase 1 portion of the HLP included in this amendment. The Phase 3A HLP's function is the same as the Phase 2 HLP.

- Phase 3 PLS/Contingency Pond, which captures the solutions from the Phase 3A HLP.

The design of the proposed Phase 3 facilities has been completed in accordance with BADCT prescriptive design guidance for 3A HLP and pond.

This is a Significant Amendment pursuant to R18-9-A211(B)(9) - Material and substantial alterations or additions to a permitted facility, including a change in disposal method, justify a change in permit conditions.

V. Regulatory Status

A Notice of Violation (NOV) issued May 21, 2019 to the facility due to exceedances of the Aquifer Quality Limit (10 mg/L) for nitrate at POC wells MW-1 and MW-3. The facility met the compliance conditions for the NOV and it was closed on June 14, 2019.

VI. Best Available Demonstrated Control Technology (BADCT):

The Heap Leach Pads, PLS Ponds, and Contingency Ponds are lined facilities that meet prescriptive BADCT as described in ADEQ guidance. Portions of the Heap Leach Pad have a double liner system with leak collection and removal system. The entire PLS pond is double lined with leak collection and removal system and the West and South Contingency Ponds are single lined. Stormwater diversion structures provide protection from the 100-year, 24-hour storm event and route water around the regulated facilities.

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

The pollutant management area (PMA) at the site includes the Phase 2 and Phase 3A Heap Leach Pads, the Phase 2 and Phase 3A PLS Ponds and the Phase 2 and Phase 3A Contingency Ponds. The discharge impact area (DIA), as defined by A.R.S. §49-201.13, is the potential areal extent of pollutant migration, as projected on the land surface as the result of a discharge from a facility. At the Moss Mine, the DIA is contiguous with the PMA since the four regulated facilities are designed using Prescriptive BADCT. There are no wells located within the DIA.