ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

ASARCO Mission Mine Complex
AQUIFER PROTECTION PERMIT NO. P-100508
PLACE ID 932, LTF 70268
SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to the 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. This document gives pertinent information concerning the issuance of the permit. 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 at the Point of Compliance (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT 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.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	ASARCO LLC
Mailing Address:	4201 W. Pima Mine Road Sahuarita, Arizona 85629
Facility Name and Location:	ASARCO Mission Mine Complex 4201 W. Pima Mine Road Sahuarita, Arizona 85629 Pima County

Regulatory Status

This Significant amendment application was received on April 23, 2018. An Aquifer Protection Permit (APP) was issued for this facility on January 26, 1999.

The latest inspection dated October 18, 2016 indicates that the facility was found to be in compliance with the APP and Arizona rules and statutes.

Facility Description

The ASARCO Mission Complex is located approximately 15 miles south of Tucson, Arizona on non-tribal land. The Mission Complex consists of tailing impoundments, overburden and waste

rock deposition areas, open pits, concentrators and other ancillary facilities associated with hard rock mining.

The Mission Complex extracts and processes copper ore from an open pit mine and operates two mills, the Mission Mill (aka North Mill) and the South Mill. The output produced by the Mission Complex is a copper concentrate which is shipped to Hayden, Arizona for final processing at a smelter.

The water used for current mining and milling operations consists of a combination of groundwater from production wells located along Pima Mine Road and water from the Central Arizona Project (CAP) provided by the Central Arizona Water Conservation District (CAWCD), as well as a minor amount from pit dewatering activities

Amendment Description

ADEQ has reviewed and approved the vertical expansion of tailings storage facility (TSF) number four and to remove the truck wash from the permit.

BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

Facilities regulated by this permit shall be designed, constructed, operated, and maintained to meet requirements specified by A.R.S. §49-243(B) and A.A.C. R18-9-A202(A)(5).

2.2.1.1 Tailings Storage Facility # 4

The tailing dam shall be expanded using the upstream method. The Engineer of Record (EOR) shall inspect the starter dike during construction to assure proper surface preparation, embankment keyway, and suitable material and lift thickness and compaction. Design drawings, specifications and as-built documentation for the starter dams shall be submitted in accordance with Section 3.0, Compliance Schedule Items 3.4.

Presliming with fine tailing material shall be initially deposited during construction of the expansion to reduce discharge. The tailing discharge shall be controlled by spigotting to ensure that the coarser sandy tailing are deposited near the expansion starter dike. The EOR shall inspect the construction of the base of the TSF to assure the use of suitable materials for presliming and verify the thickness of the presliming layer is a minimum of 3 feet thick. Tailing shall be delivered to the tailing facility at a rate not to exceed 23 million tons per year, based on dry weight of tailing from the Mission Complex concentrators.

The overall slope of the embankment is approximately 3.7H:1V. The embankment crest will be raised in 12-foot increments, with 50-foot wide benches every 3 raises (30 feet) to facilitate raising of the tailings delivery line. Each raise is constructed with a downstream slope of 2H:1V and an upstream slope of approximately 1.6H:1V and a crest width of approximately 14 feet. The sequence of raises will be continued until the embankment reaches its final elevation of 3,175 feet above mean sea level (amsl). Upon completion of each bench, concurrent reclamation shall be commenced including applying a minimum 6” layer of alluvial material and reseeding with native vegetation.

2.2.1.2 Tailings Storage Facility # 5

Tailing will be placed in this facility only when needed for emergency control not to exceed 30,000 tons (solids) per year. The tailing dam is constructed using the upstream method. The tailing discharge is controlled by spigotting to ensure that the coarser sandy tailing are deposited near the starter dike. Total deposition of tailing over the life of the facility shall cause the ultimate dam height not to exceed an elevation of 3,235 feet AMSL. Upon completion of each 30 foot bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

2.2.1.3 Tailings Storage Facility # 6

Tailing will be placed in this facility only when needed for emergency control not to exceed 30,000 tons (solids) per year. The tailing dam is constructed using the upstream method. The tailing discharge is controlled by spigotting to ensure that the coarser sandy tailing are deposited near the starter dike. Total deposition of tailing over the life of the facility shall cause the ultimate dam height not to exceed an elevation of 3,170 feet AMSL. Upon completion of each 30 foot bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

2.2.1.4 Tailings Storage Facility # 7

The tailing dam is constructed using the upstream method. The tailing discharge is controlled by spigotting to ensure that the coarser sandy tailing are deposited near the starter dike. Total deposition of tailing over the life of the facility shall cause the ultimate dam height not to exceed an elevation of 3,150 feet AMSL. Tailing shall be delivered to the tailing facility at a rate not to exceed 11 million tons per year, based on dry weight of the tailing from the Mission Complex concentrators. Upon completion of each 30 foot bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

2.2.1.5 Tailings Storage Facility # 8

The tailing dam was constructed using the upstream method. The tailings facility has been capped with a minimum 6 inches of alluvial materials and shall not receive additional tailings. The capped facility shall be maintained and repaired as needed to assure that vegetation is established.

2.2.1.6 Decant Ponds

The decant ponds shall be maintained at least 500 feet from the embankment crest to ensure dam integrity and minimum 4.5 feet of freeboard shall be maintained.

2.2.1.7 TSF Stormwater runoff and run-on controls

Stormwater runoff and run-on controls for TSF #4, #5, #6, #7 and #8 shall be provided per Compliance Schedule Section 3.0. item 3.3.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not result in violation of Aquifer Water Quality Standards at the point of compliance, the permittee will monitor the groundwater at the POC wells annually for metals and Biennial for Common Ions and Miscellaneous Analysis, metals and Radionuclide.

Facility inspections and operational monitoring shall be performed on a routine basis (see Section 4.2, Table 4.2.1 in the permit).

Point of Compliance

The Points of Compliance (POCs) have been established at the following locations:

POC #	POC Location	Latitude	Longitude	ADWR #
1 (MW-2)	Northeast of TSF No. 8	31°57′25″ N	110°59′45″ W	55-531807
2 (MW-3)	Northeast of TSF No. 4	31°59′39″ N	110°59′44″ W	55-558068
3 (MW-6r)	Northeast of TSF No. 7	31°58′28″ N	110°59′47″ W	55-565267

Groundwater monitoring is required at the POC Wells. The Director may amend this permit to designate an additional point or points of compliance if information on groundwater gradient or groundwater usage indicates the need.

Piezometer Well

Water level monitoring is required in the piezometers as an indication of the formation of saturated zone(s) or an increase in phreatic level during dam operation which may compromise the stability of the dam. The piezometers are not POC wells, but shall be monitored pursuant to Section 2.6.2.5 and Section 4.2, Table 4.2.1.

Piezometer ID	Location	Latitude	Longitude
4S	South	31.979585°	-110.998626°
4CA	Center, Upper	31.987785°	-110.998800°
4CB	Center, Lower	31.987766°	-110.998048°
4NA	North, Upper	31.994872°	-110.998882°
4NB	North, Lower	31.994935°	-110.998069°
5S	South	31.972656°	-111.038693°
5N	North	31.976454°	-111.038671°
6S	South	31.958961°	-111.014588°
6N	North	31.970843°	-111.016077°
7A	Upper	31.966307°	-111.000907°
7B	Lower	31.966334°	-111.000248°
8A	Upper	31.951856°	-110.997159°
8B	Center	31.951893°	-110.996575°
8C	Lower	31.951793°	-110.996177°

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

IV. HYDROGEOLOGIC SETTING

The TFS No. 4 is located in the western portion of the Santa Cruz Basin in the Tucson Active Management Area (AMA) within the Basin and Range Physiographic Province and Santa Cruz River Watershed. The Basin and Range Physiographic Province is defined by uplifted blocks or mountain ranges with intervening alluvial basins or valleys, created by extensional (pull apart) faulting. The elongated basins and ranges typically trend northwest-southeast and parallel one another. Bedrock consist of Paleozoic sedimentary units and Laramide intrusive rocks.

The aquifer system at ASARCO Mission Complex is unconfined with groundwater flow going northeasterly toward the Santa Cruz River. Water levels at ASARCO Mission Complex range from 2,390 ft. amsl and 2,580 ft. amsl.

According to the hydrology report submitted in the application the additional tailings volume is not anticipated to cause any major groundwater fluctuations. TFS No. 4 will be able to handle the additional head without any effect being able to be seen at the down gradient POC MW-3. Modeling in the hydrology report also indicates over time the addition head pressure being placed by the TSF No. 4 will diminish as the TSF is drained/dried out with the closure of the Mission Complex mine.

PMA/DIA

There will be no change to the PMA as the expansion to TSF No. 4 is a vertical expansion that should no effect any portion of the PMA.

The discharge impact area (DIA) is defined by ARS §49-201.13. The DIA is defined as the potential areal extent of pollutant migration, as projected on the land surface, as the result of a discharge from a facility. The DIA for this project is only a small area outside the boundaries of TSF No. 4. ASARCO indicated in the application that there would be no changes to the DIA because the facility is still operating as designed and also showed from groundwater modeling that very little drainage and flow is model coming from the TSF and is not predicted to travel outside of the originally predicted DIA.

V. SURFACE WATER CONSIDERATIONS

Stormwater and surface water considerations are incorporated into the permitting of the Mission Complex and will be inspected for the duration of the permit. This insures that no discharge control components are impacted by surface water.

VI. COMPLIANCE SCHEDULE

The compliance schedule item is located on page 15 in the permit.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The ASARCO LLC, has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202 (B).

The permit requires that appropriate documents be sealed by an Arizona-registered geologist or professional engineer. This requirement is part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The ASARCO LLC, has demonstrated the financial responsibility necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The closure costs are $4,097,974, post-closure costs are $386,691, and indirect cost are $1,596,076, for a total of $6,080,741. The financial assurance mechanism shall be demonstrated through a Performance Bond per A.A.C. R18-9-A203(C)(2).

Zoning Requirements

Mining activity of greater than five contiguous acres is exempt from zoning requirements pursuant to A.R.S. § 11-812.

VIII. ADMINISTRATIVE INFORMATION

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit.

Public Comment Period (A.A.C. R18-9-109(A))

The Department shall accept written comments from the public before a significant permit amendment is made. The written public comment period begins on the publication date of the public notice and extends for 30 calendar days. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - APP Unit and Reuse Unit 1
Attn: Monica Phillips
1110 W. Washington Street, Mail Code 5560D
Phoenix, Arizona 85007
Phone: (602) 771-2253