ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

ASARCO LLC –Mission Complex Mine
Wastewater Treatment Plant
Aquifer Protection Permit #P-512406
Place ID 932, LTF 65838

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an Aquifer Protection Permit for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to 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; 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., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	ASARCO LLC–Mission Complex Mine
Mailing Address:	4201 West Pima Mine Road Sahuarita, Arizona 85629
Facility Name and Location:	ASARCO LLC –Mission Complex Mine Wastewater Treatment Plant 4201 West Pima Mine Road Sahuarita, Arizona 85629 Pima County

Regulatory Status

An application for this Individual APP was received on June 6, 2017.

Facility Description

The ASARCO, LLC - Mission Complex Mine is authorized to operate the ASARCO, LLC - Mission Complex Wastewater Treatment Plant (WWTP), a 9,525 gallons per day (gpd) facility. The WWTP consists of an influent pump station, a package treatment plant, a UV disinfection unit and an effluent pump station. The package treatment plant is a prefabricated steel extended aeration treatment system which includes a bar screen, a flow equalization chamber, an anoxic chamber, an aerobic chamber, a clarifier and a sludge holding tank. Sludge shall be hauled off-site to a permitted facility for treatment and/or management in accordance with state and federal regulations.

The effluent will be directed through an enclosed system, comingled with approximately 64,000 tons per day (16.9 million gpd) of liquid from mining activities to the on-site Tailings Pond No. 4, which is a part of the mine site's area-wide permit (APP: P-100508). Water reclaimed from the tailings pond shall be recycled for onsite re-use in the milling process.

The WWTP shall eliminate the three existing septic tanks and adjacent leach field and is designed to pump and treat domestic wastewater generated from the ASARCO administration building, change houses, north mill laboratories, warehouse, weld shop, electric shop, and grey water shower system.

Facilities	Latitude	Longitude
Mechanical WWTP	31° 59' 56.6" North	111° 02' 53.3" West

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The mechanical WWTP is designed to meet the treatment performance criteria for new facilities as specified in A.A.C. R-18-9-B204.

III. HYDROGEOLOGIC SETTING

The ASARCO LLC, Mission Complex is located within the Santa Cruz River drainage basin. The main Santa Cruz River channel is approximately 10 miles northeast of the ASARCO No. 4 Tailing Facility and exhibits a low gradient draining from south to north in the basin area immediate to ASARCO.

The hydrogeologic system in the area of ASARCO represents a transitional zone from a bedrock dominated system within and west of the ASARCO pit to an unconfined alluvial system extending and thickening to the east. This transition zone coincides with the mine location along the Santa Cruz Basin western margin.

Bedrock consisting of Paleozoic sedimentary units and Laramide intrusive rocks, is encountered at a depth of approximately 150 feet bgs in the area of the ASARCO pit. In general, water production in the bedrock complex is from secondary permeability associated with individual fractures, fracture systems, and faults. Based on the limited water production encountered during drilling and the lack of significant volume of groundwater entering the ASARCO Pit, the bedrock complex is interpreted to have low hydraulic conductivity.

Groundwater flow in the bedrock units adjacent to the ASARCO pit is toward the pit, or down-hydraulic gradient. Water levels from the North Mill piezometers indicated that the divide between pit-flow and easterly groundwater flow is located much closer to the pit boundary. Geologic and drilling evidence suggest that the restricted lateral extent of the hydrologic sink at the North Mill area is the result of low bedrock permeability and/or the presence of a low permeability structure separating the pit from the piezometers.

Unconsolidated and semi-consolidated basin fill sediments overly the bedrock throughout much of the ASARCO LLC, Mission Complex, with the area east of ASARCO primarily defined by the saturated basin-fill. The easterly increasing basin fill sediment thickness reaches approximately 1,300 feet bgs near Interstate 19. The Helmet Fanglomerate comprises the principal aquifer in the ASARCO LLC, Mission Complex area.

Groundwater flow in the area of ASARCO tailing facilities is to the east toward the cone of depression created by the operation of the water supply wells. The cone of depression

influences groundwater flow direction over an area of approximately five square miles. The hydraulic gradient within the ASARCO wellfield is very shallow indicating high hydraulic conductivity. A steep trending hydraulic gradient is evident east of the cone of depression coincidental with the north flowing Santa Cruz River drainage.

POLLUTANT MANAGEMENT AREA (PMA) / DISCHARGE IMPACT AREA (DIA)

Arizona Revised Statutes (A.R.S.) § 49-244(1) defines PMA as "the limit projected in the horizontal plane of the area on which pollutants are or will be placed."

- The PMA for this facility is defined by a line circumscribing the wastewater treatment plant.

DIA is defined by ARS §49-201(13) and means the potential aerial extent of pollutant migration, as projected on the land surface, as the result of a discharge from a facility.

- The DIA for the effluent discharge is defined by a line circumscribing the effluent discharge area at the Tailings No. 4 impoundment.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The ASARCO – Mission Complex facility is not located-within the 100-year flood plain based upon Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA).

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not violate Aquifer Water Quality Standards at the point of compliance, effluent is required to meet the Discharge Limits in Section 4.2, Table IA.

The permittee shall monitor the WWTP for flow daily and shall take representative samples of the effluent collected downstream of the UV disinfection unit, weekly for Fecal Coliform, and monthly for total nitrogen as per Section 4.2, Table IA.

Point of Compliance (POC)

The POC for this facility is located as follows:

POC #	POC Location	Screened Interval (ft bgs)	Latitude	Longitude	ADWR #
1	Downgradient of the Wastewater Treatment Plant (conceptual well)	N/A	32° 00' 04" N	111° 02' 44" W	N/A

Routine groundwater monitoring is not required at this time. The Director may amend this permit to require installation of a monitor well and initiation of groundwater monitoring at the POC or to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

VI. COMPLIANCE SCHEDULE

A compliance schedule is included in Section 3.0 of the permit. The compliance schedule includes requirements for the submittal of the Engineer's Certificate of Completion for the new mechanical WWTP (item 3.1) and the updated Financial Assurance (items 3.2 and 3.3)

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 WWTP was designed to meet the treatment performance criteria for new facilities as specified in A.A.C. R-18-9-B204, per the design report prepared and stamped, dated, and signed (sealed) by John F. Kotson, P.E., CDM Smith dated May 30, 2017 and subsequent sealed submittals that served as additions to the design report.

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

Financial Capability

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The estimated dollar amount for facility closure/post closure cost is $25,455.00. The financial capability was demonstrated through A.A.C. R18-9-A203(C)(2).

Zoning Requirements

The WWTF has been properly zoned for the permitted use and the permittee has complied with all zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(B)(3).

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 process.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – Groundwater Protection Value Stream – APP Unit 1
Attn: Monica Phillips
1110 West Washington Street, Mail Code 5600D-3
Phoenix, Arizona 85007
Phone: (602) 771-2253