

ASARCO LLC Hayden Operations  
Aquifer Protection Permit No. P-100507  
Place ID 4296, LTF No. 83923  
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:**

The ASARCO LLC Hayden Operations facility is located at 866 N. Hayden Avenue in Hayden, Arizona, Gila County. Directions to the facility from the nearest highway: travel north on Hwy 177 from intersection of Hwy 77 and Hwy 177.

**III. Facility Description:**

The ASARCO LLC Hayden Operations consist of a complex that encompasses the following facilities:

- Assay and metallurgical laboratories (2)
- Solid waste landfills (2)
- Primary copper smelter
- Concentrate and byproduct storage areas
- Slag deposition areas (active and inactive)
- Rail and truck acid loading stations and storage tanks
- Sulfuric acid plant, concentrate filter plant and lime slaker
- Petroleum product storage area
- Copper ore concentrator and crusher
- Vehicle wash racks
- Water treatment plant
- Inactive limestone quarry
- AB-BC and D Tailings Impoundments

Hayden receives sulfide ore from the Ray Mine via the Copper Basin Railway. Secondary and tertiary crushing, conveying, and rod and ball milling are performed followed by flotation, filtering and smelting. Tailings generated in the flotation process are deposited in the AB-BC and D tailings impoundments. Low grade slag is deposited in the slag deposition area. Higher grade slag and byproducts are recycled and reused throughout the crushing, milling, and flotation systems.

Class B+ effluent from the Town of Hayden Wastewater Treatment Plant is used by the Hayden Operations facility in the milling process stream. Effluent is monitored under a separate Town of Hayden Wastewater Treatment Plant APP. There are various water recycling and water reclamation efforts employed during the copper extraction process. Fresh water used at the Hayden Operations is derived from wells located near the Gila and San Pedro rivers.

#### **IV. Amendment Description:**

The purpose of the amendment is to update the BADCT requirement for the AB-BC Tailings impoundment to include the construction of a stability buttress abutting the lower slope on the southern facing side of the TSF to mitigate the stability issue for the lower slope and a surcharge buttress along the AB side of the TSF to mitigate the stability issue for the upper slope. The buttress will be constructed of granular colluvial materials borrowed from within the footprint of the D-Dam TSF. The buttress width will be a maximum of 35-ft, measured horizontally. The face of the buttress will have a variable slope ratio with the maximum slope at a 2H:1V configuration.

The purpose of this amendment is to:

1. Approve the AB-BC Tailings Storage Facility Buttress Design, including:
  - a. Approve the design configuration
  - b. Approve the buttress stability analysis and ensure it meets the prescribed stability safety factors for static and pseudo-static conditions in the Arizona Mining Best Available Demonstrated Control Technology (BADCT) Guidance Manual.
  - c. Approve the emergency stormwater channel design
  - d. Approve the tailings deposition rate and maximum elevation
  - e. Approve the construction schedule to achieve BADCT prescribed stability safety factors within the shortest timeframe practical considering loading and pore pressure conditions within the tailings.
  - f. Add facility inspection and monitoring during operation, non-operation and during buttress construction.
2. Approve the AB-BC Tailings Storage Facility Instrumentation and Monitoring Plan

The permit category for this amendment was determined to be a “Significant Amendment” as per A.A.C. R18-9-A211(B)(9) due to addition of a buttress to the tailings facility and permit changes include modifications and additions to the facility operational monitoring.

#### **V. Regulatory Status**

A Certificate of Disclosure was provided with the amendment application describing a FOV from the US EPA issued to ASARCO LLC - Hayden Operations on November 10, 2011. The FOV alleges that ASARCO LLC- Hayden Operations was a major source of hazardous air pollutants and had not fully complied with the Clean Air Act requirements applicable to major sources. On December 30, 2015 the US District Court for the District of Arizona entered a Consent Decree in United States of America v. ASARCO LLC, No. 16-CV-02206-PHX-DLR in which ASARCO did not admit to any liability but has fully complied with the terms of the Consent Decree.

**VI. Best Available Demonstrated Control Technology (BADCT):**

With the exception of the addition of a buttress to the AB portion of the AB-BC Tailings Impoundment, there are no changes to the BADCT for the remainder of the facilities.

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

The Pollutant Management Area (PMA) and the Discharge Impact Area (DIA) remain the same. No changes to either the PMA or DIA were proposed in the Other Amendment application.