

Freeport-McMoRan Morenci Operations  
Aquifer Protection Permit No. P-100193  
Place ID 2512, LTF No. 95351  
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:**

Freeport-McMoRan Morenci Inc.

## **III. Facility Name & Location:**

Morenci Mine  
4521 U.S. Highway 191  
Morenci, Arizona 85540

## **IV. Facility Description:**

This facility is one of the largest open-pit copper mines in the world. The mine and supporting operations cover an area of approximately 72 square miles. Copper has been actively mined from the Morenci District since the late 1800s. The current Morenci operation includes an open pit with several mining areas, leach operations, and a tailings deposition area. Copper and molybdenum concentrates are produced through conventional milling and froth flotation processes. Cathode copper is produced through solution extraction and electrowinning (SX/EW) processes, and through the concentrate leach process. Gold and silver concentrates are also produced as minor components in the copper concentrate. Morenci Operation mines approximately 850,000 tons of rock per day from the Morenci open-pit mining areas, and produces between 1,500 and 1,800 tons of copper concentrate and about 900 tons of cathode copper per day.

There is a total of 111 APP discharging facilities consisting of tailings impoundments, process solutions impoundments, non-stormwater impoundments, leach stockpiles, vehicle wash facilities, a wastewater treatment plant, and miscellaneous facilities. A list of the facilities is provided in Section 2.1 of the APP.

## V. Amendment Description:

The purpose of the amendment is for the following reasons:

- Update the closure and post-closure strategies and cost estimates for all facilities at the mine.
- Remove two permitted APP facilities, Upper Chase Creek Diversion and Santa Rosa Diversion, from the permit because they have been mined out and no longer exist.
- Incorporate 23/25 Auxiliary Pond, current permitted under a Type 3.04 General Permit, into the existing APP.

The Groundwater Protection Value Stream approved the closure cost estimates of \$1,362,649,806 and post-closure cost of \$95,125,620 for a total of \$1,457,775,426. The Net Present Value (NPV) of the total cost is \$402,881,231.

The Groundwater Protection Value Stream also approved the closure and post-closure costs for the facilities that have not been constructed yet (see table below). As per compliance schedule item in Section 3.0, the permittee shall provide an updated financial assurance mechanism.

The closure and post-closure costs and the total NPV value for the facilities not yet constructed are presented below:

Facilities	Closure Cost	Post-Closure Cost	Total Cost	Total NPV Value
Morenci Canyon Stockpile, MRC PLS Pond, MRC Process Pond	\$240,863,000	\$5,640,000	\$246,503,000	\$35,380,228
Producer Leach Stockpile, Producer PLSI, and Producer PWI	\$263,687,000	\$5,640,000	\$269,327,000	\$28,785,137

## VI. Regulatory Status

Currently, there are no open enforcement actions for this facility.

## VII. Best Available Demonstrated Control Technology (BADCT):

All of the discharging facilities listed in Section 2.1 of the APP, including the facilities not yet constructed which include: Morenci Canyon Stockpile, MRC PLS Pond, MRC Process Pond, Producer Leach Stockpile, Producer PLS Impoundment, and Producer Process Water Impoundment, employ BADCT requirements as set forth in Arizona Revised Statutes (A.R.S.) § 49-243.B.1.

## VIII. Compliance with Aquifer Water Quality Standards (AWQS):

The facility has demonstrated that potential pollutants discharged from the discharging facilities listed in Section 2.1 of the APP will not cause or contribute to a violation of aquifer water quality standards at the applicable points of compliance and that no pollutants discharged will further degrade at the applicable points of compliance the quality of any aquifer that at the time of issuance of this amendment violates the aquifer water quality standard for that pollutant.