

Freeport-McMoRan Safford Mine
Aquifer Protection Permit No. P-100534
Place ID 5425, LTF No. 75301
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:

8500 N. Freeport-McMoRan Road
Safford, Arizona 85546

III. Facility Description:

The Freeport-McMoRan Safford Mine is located in Graham County, Arizona, approximately eight miles north of the City of Safford, in the foothills of the Gila Mountains. The project is located on Freeport-McMoRan Safford Inc. (FMSI) patented land. This site involves open-pit copper mining and leaching of the ore on lined heap leach pads. The resulting pregnant leach solution is processed at an on-site solvent extraction/electrowinning (SX/EW) plant. Existing facilities include three open pits, two heap leach pads, two process solution ponds, three non-stormwater ponds, one evaporation pond, a SX/EW plant, and infrastructure and support facilities associated with copper mining.

IV. Amendment Description:

ADEQ has reviewed and approved the following changes under this permit amendment:

- Removed the South Process Solution Impoundment (SPSI) from the permit. The SPSI has been replaced with a new stainless steel tank, referred to as the Process Solution Tank, which will accept process solution flows from the HLF and the NPSI.
- The North Process Solution Impoundment (NPSI) has been relocated approximately 1700 feet to the northwest and redesigned to accept process solution flows from the HLF and send process solution to the Process Solution Tank.
- The North Non-stormwater Impoundment (NNSI) has been relocated approximately 580 feet to the southwest and redesigned to contain flows resulting from overflows from the Process Solution Tank and the NPSI as well as stormwater flows resulting from the 100-year, 24-hour design storm event on the HLF.
- Removed Compliance Schedule Item (CSI) # 1 demonstration that the financial assurance mechanism listed in Section 2.1 of the permit is being maintained. The demonstration was

submitted on June 25, 2019 and has been reviewed and approved under this permit amendment.

- Added a second Point of Compliance (POC) well AP-51 located at the north end of the HLF. POC well AP-51 was installed in 2018.
- Updated Closure and Post-Closure Cost Estimates required in the previous permit per CSI #3, for the new and existing facilities.
- Removed CSI #6. POC Well AP-22A was required in the previous permit to replace POC well AP-22. CSI #6 was reviewed and Approved by ADEQ on May 1, 2017.
- Removed POC well AP-50 required in the previous permit per CSI #7. POC well AP-50 was installed in 2018 was observed to be dry due to a groundwater divide beneath the Lone Star HLF.
- Added existing well DPW-12, to be substituted for AP-50 as the permitted downgradient POC well for the southern portion of the Lone Star HLF.
- Removed CSI # 8, CSI # 9, and CSI #10 required in the previous permit. These items were provided as a supplement to this current permit application. CSI #8 and CSI #9 Ambient Groundwater monitoring at (POC Well DPW-12) completed and approved.
- Updated the Contingency and Emergency Response Plan required in the previous permit per CSI #11.
- Removed CSI # 13 required in the previous permit. CSI #13 Well Abandonment Report for POC Well -2 (AP-22) and POC Well - 3 (AP-40) was reviewed and approved by ADEQ on September 5, 2017.
- Removed CSI #14, Groundwater alert levels required in the previous permit were evaluated and were found to be unnecessary.

V. Regulatory Status:

The latest inspection dated October 27, 2011 indicates that the facility was found to be in compliance with the APP and Arizona rules and statutes.

VI. Best Available Demonstrated Control Technology (BADCT):

All of the discharging facilities listed above, including the new HLF, NPSI, SNSI, and NNSI, employ BADCT requirements as set forth in Arizona Revised Statutes (A.R.S.) § 49-243.B.1. The new facilities will be constructed with the same design as the existing facilities..

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

The facility has demonstrated that potential pollutants discharged from the discharging facilities listed above 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 quality standard for that pollutant.

Six point of compliance (POC) wells are approved and have been installed. Two POC wells are located downgradient of the HLF.

A biennial expanded list, along with a quarterly reduced list, of constituents are required to be monitored at the POC wells.

The quarterly monitoring list is composed of the following constituents:

Depth to water, water level elevation, field pH, field specific conductance, field temperature, copper, beryllium, cadmium, cobalt, nickel, selenium, fluoride, magnesium, nitrate + nitrite as N, sulfate, and total dissolved solids.

The biennial monitoring list is composed of the following constituents:

Depth to water, water level elevation, field pH, field specific conductance, field temperature, total dissolved solids, total alkalinity, carbonate, bicarbonate, hydroxide, chloride, sulfate, sodium, potassium, calcium, magnesium, nitrate + nitrite as N, fluoride, aluminum, antimony, arsenic, beryllium, barium, cadmium, chromium, iron, lead, nickel, selenium, thallium, copper, cobalt, manganese, zinc, gross alpha particle activity, radium 226 + radium 228, total uranium, benzene, toluene, ethylbenzene, total xylenes, and total petroleum hydrocarbons.