

Aquifer Protection Permit P-100534
Place ID 5425, LTF 63848
Significant Amendment
Freeport-McMoRan Safford Inc.

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an aquifer protection permit significant amendment 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 (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.

I. FACILITY INFORMATION

Name and Location

Permittee's Name:	Freeport-McMoRan Safford Inc.
Mailing Address:	P.O.Box 1019 Safford, Arizona 85548
Facility Name and Location:	Freeport-McMoRan Safford Inc. 8500 N. Freeport-McMoRan Road Safford, Arizona 85546

Regulatory Status

The Notice of Disposal for this site was received on January 21, 1985. The Aquifer Protection Permit (APP) Application for this site was received on October 2, 1998. It was then issued on May 18, 2006 and amended on October 23, 2007; August 7, 2009; November 24, 2009; December 1, 2011; May 18, 2012; May 15, 2014; March 18, 2015, and April 13, 2016.

Facility Description

The Freeport-McMoRan Safford mine is located in Graham County, Arizona, approximately 8 miles north of the City of Safford, in the foothills of the Gila Mountains. The project is located on Freeport-McMoRan Safford Inc. patented land. The site involves open-pit copper mining and leaching of the ore on a lined leach pad. The resulting pregnant leach solution is processed at an on-site solution extraction/electrowinning (SX/EW) plant. The project consists of the development of

three open pits, development rock stockpiles, two heap leach pads, three process solution impoundments, four non-stormwater impoundments, a SX/EW process plant, and infrastructure and support facilities associated with copper mining. Domestic wastewater discharges are authorized separately under Type 4 general APPs. The facility also includes 16 small stormwater retention dams that are not regulated under APP No. P-100534.

The site includes the following facilities permitted under APP No. P-100534:

Facility	Latitude	Longitude
Heap Leach Pad (Pad)	32° 56' 45" N	109° 41' 00" W
Excess Process Solution Impoundment (EPSI)	32° 56' 15" N	109° 41' 15" W
Non-stormwater Impoundment (NSI)	32° 56' 00" N	109° 41' 30" W
San Juan Non-stormwater Evaporation Impoundment (SJNEI)	32° 56' 30" N	109° 39' 15" W
Lone Star Heap Leach Facility (HLF)	32°56'03"N	109°44'07"W
North Process Solution Impoundment (NPSI)	32°55'04"N	109°44'32"W
South Process Solution Impoundment (SPSI)	32°55'00"N	109°44'38"W
North Non-Stormwater Impoundment (NNSI)	32°55'12"N	109°44'44"W
South Non-Stormwater Impoundment (SNSI)	32°55'08"N	109°44'51"W

Amendment Description

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

- 1- Inclusion of five new APP discharging facilities for the Lone Star Project:
 - Lone Star Heap Leach Facility (HLF)
 - North Process Solution Impoundment (NPSI)
 - South Process Solution Impoundment (SPSI)
 - North Non-Stormwater Impoundment (NNSI)
 - South Non-Stormwater Impoundment (SNSI)
- 2- Addition of one new point of a compliance (POC) well for the proposed revised PMA.
- 3- Abandonment and replacement of existing well POC-2 (AP-22).
- 4- Removal of POC-3 (AP-40), POC-4 (AP-41), POC-6 (AP-38), POC-7 (AP-37), and POC-8 (AP-11).

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

All of the discharging facilities listed above including the New Lone Star Heap Leach Facility, the new North and South Process Solution Impoundments, and the new North and South Non-Stormwater Impoundments, 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.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

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.

Monitoring and Reporting Requirements

Five point of compliance (POC) wells are approved. Three of them are existing and 2 will be installed at a later time. One POC well is located downgradient of the Lone Star Heap Leach Facility (HLF). Twelve consecutive months/quarters of monitoring to establish alert levels and aquifer quality limits at the points of compliance will be required, and alert levels shall be calculated and will be incorporated into the permit in a future amendment. 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.

Regionally, the depth to water varies in relation to the northwest trending Butte fault. North of the fault, the depth to water ranges from near the surface in the vicinity of springs, to greater than 500 feet below ground surface (bgs). South of the fault, depth to groundwater typically is 600 to greater than 800 feet bgs in wells directly south of the fault, to less than 100 feet bgs in the southwestern part of the project area.

Depth to water measured during the ambient monitoring period (September 2006 through August 2007) ranged from 405 feet bgs to 633 feet bgs in POC wells in the vicinity of the Heap Leach Pad, and from 8 feet bgs to 15 feet bgs in POC Well AP-25, located in the vicinity of the San Juan Non- Stormwater Evaporation Impoundment. In general groundwater levels have dropped as a result of groundwater pumping.

The nearest downgradient wells not owned by Freeport-McMoRan are located approximately 4.5 miles southwest of the Heap Leach Pad.

Point(s) of Compliance (Hazardous and Non-Hazardous)

WELL ID	ADWR ¹ Registration Number	LATITUDE	LONGITUDE
AP-22A ²	TBD	TBD	TBD
AP-25	55-556055	32° 56' 15.830" N	109° 39' 15.580" W
AP-35B	55-919486	32° 57' 06.600" N	109° 41' 31.130" W
AP-39	55-211962	32° 55' 34.229" N	109° 42' 05.634" W
AP-50 ³	TBD	32°55'04"N	109°44'58"W

1. ADWR = Arizona Department of Water Resources
2. New POC well to replace AP-22
3. New POC well

IV. STORM WATER AND SURFACE WATER CONSIDERATIONS

The site is located within the Gila River basin. A perennial reach of the Gila River is located approximately five miles south of the project area. The project area is dissected by several southwest flowing ephemeral tributaries of the Gila River, including Watson Wash, Talley Wash, Cottonwood Wash, and Peterson Wash. Four springs are located upslope of the project area.

A series of diversion channels and dams will divert stormwater runoff around the permitted facilities. All permitted facilities are designed to contain the precipitation falling on the facility from the 100-year, 24-hour storm event, with a 24-hour power outage, and still maintain appropriate freeboard.

V. COMPLIANCE SCHEDULE

The compliance schedule requires submittal of closure/post-closure cost estimates and financial assurance mechanism including the proposed facilities before putting the new facilities into operation. The compliance schedule also requires submittal of an updated financial assurance demonstration every 2 years from permit issuance and revised closure/post-closure cost estimates every 6 years after permit issuance. The compliance schedule also requires installation of new POC wells, abandonment reports for abandoned wells, and ambient groundwater monitoring for new POC well.

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

Freeport-McMoRan Safford Inc. 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 permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

Freeport-McMoRan Safford Inc. has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203 and as amended. The permittee shall maintain financial capability throughout the life of the facility. ADEQ approved the closure costs of \$39,850,427 and post-closure cost of \$230,625. The permittee provided financial capability for the estimated Net Present Value (NPV) of the closure and post-closure costs in the amount of \$27,653,766. The financial capability was demonstrated through A.A.C. R18-9-A203(C)(8).

ADEQ is currently allowing the use of (NPV) for this permit while ADEQ holds stakeholder meetings and reviews the use of NPV for demonstration of financial capability.

Zoning Requirements

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

VII.ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

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 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. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

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

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. 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.

VIII. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – APP Unit 1
Attn: Mohamed Hegazy, Ph.D., P.E.
1110 W. Washington St., Mail Code: 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771- 44615