

Aquifer Protection Permit P-101679
 Place ID 1567, LTF 62622
 Significant Amendment
Freeport-McMoRan Sierrita Inc.

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to 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 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 Sierrita Inc.
Mailing Address:	P.O. Box 527 Green Valley, AZ 85622
Facility Name and Location:	Freeport-McMoRan Sierrita Inc. 6200 W. Duval Mine Road Green Valley, AZ 85622

Amendment Description

The purpose of this amendment is to make the following changes to the permit:

1. West Waste Rock Piles (D-19): expand from 715 acres to 1,285 acres; change BADCT to allow upstream stormwater to penetrate waste rock pile and indicate that most of the facility is within the Pollutant Containment Capture Zone (PCCZ).
2. RS-2 Waste Rock Pile (D-47): RS-2 is the new name for the "M Waste Rock Pile"; expand from 275 acres to 693 acres; change BADCT to add a stormwater diversion channel and indicate the facility is within the PCCZ; increase the maximum crest elevation from 4,500 to 4,800 ft-amsl.
3. Moly Satellite Pit (D-61): revise description to indicate it will be covered by RS-2 Waste Rock Pile.
4. RS-3 Waste Rock Pile (D-36): RS-3 is the new name for the "Ocotillo Waste Rock Pile"; change the BADCT to add a stormwater diversion channel and indicate that the western half is within the Sierrita-Esperanza PCCZ and the eastern half is within the Twin Buttes

- PCCZ. ; increase the maximum crest elevation from 4,550 to 4,600 ft-amsl.
5. 07-Pond (D-43): revise description to indicate it will be covered by RS-3 Waste Rock Pile.
 6. V Waste Rock Stock Pile (D-56): revise description to indicate it will be covered by RS-3 Waste Rock Pile.
 7. Ocotillo Pit (D-60): revise description to indicate it will be covered by RS-3 Waste Rock Pile.
 8. Sierrita-Esperanza Pit (D-55): expand surface area from 72 million to 98 million square feet.
 9. Sulfide Active Leach Area (D-17): change the ultimate crest elevation from 4,400 to 4,900 ft-amsl.
 10. Oxide Active Leach Area (D-18): change the ultimate crest elevation from 4,400 to 4,900 ft-amsl and extend the facility boundary to increase the area from 570 acres to 580 acres.
 11. Copper Sulfate Plant Tanks Tertiary Containment Structures (D-65) (Non-stormwater impoundments): remove from permit as exempt per tank substantive policy.
 12. Rhenium Plant Sump (D-63): remove from permit as exempt per tank substantive policy.
 13. Copper Concentrate Storage (D-35)(Storage Facility): remove from permit as exempt per tank substantive policy.
 14. Non-Municipal Solid Waste Landfill (D-14): remove signature block for Waste Program Director because facility obtained the Disposal General Permit for Non-Municipal Solid Waste Landfills at Mining Operations.

Regulatory Status

The Freeport-McMoRan Sierrita, Inc. mine is operating under an APP issued on August 22, 2016. An application to amend the permit was received on September 2, 2016.

Facility Description

Freeport-McMoRan Sierrita Inc. (Sierrita) is operating an open pit mine and mineral concentration facility which is located approximately 6 miles northwest of Green Valley, in Pima County, Arizona. Green Valley lies approximately 25 miles south of the city of Tucson, Arizona. Facilities at the Freeport-McMoRan Sierrita Inc. (Sierrita) mine, previously Phelps Dodge Sierrita, Inc., and before that Cyprus Sierrita Corporation, include conventional crushing and flotation followed by differential flotation, leaching and roasting of molybdenum disulfide, rhenium recovery, molybdenum disulfide production and packaging, molybdenum trioxide production and packaging, leach stockpiles, and solution extraction/electrowinning facilities.

Sierrita produces copper concentrate, cathode copper and copper sulfate, along with molybdenum products and rhenium products. Copper and molybdenum are the primary products produced by Sierrita. Copper and molybdenum disulfide are produced through conventional milling and froth flotation, and pure copper is produced through solution extraction and electrowinning. Copper sulfate is produced through solution extraction and crystallization. Molybdenum trioxide is produced through roasting. Rhenium is also recovered in the molybdenum roasting operations.

The Sierrita property consists of two open-pits: Sierrita-Esperanza pit, and a molybdenum satellite pit; a 115,000-ton-per-day concentrator, two molybdenum roasting plants, a rhenium

plant, an oxide and low-grade sulfide stockpile leaching operation, and a copper sulfate plant. Ore production from each pit is highly variable; however the aggregate production is limited to the capacity of the plant operation. The mine is capable of producing up to 250 million pounds of copper and, as a co-product, 25 million pounds of molybdenum annually.

Domestic wastewater treatment is separately permitted under general permits, and is not permitted under this individual APP.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

A description of the BADCT used for each discharging facility can be found in the permit in Section 4, Table 4.1.1.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

The demonstration of compliance with aquifer water quality standards for this amendment is based on the material characterization for the waste rock submitted with the Application. The material characterization demonstrates that the material to be placed in the extended waste rock piles is unlikely to have any adverse impact on either groundwater or surface water quality. Further, the passive containments zones formed by the Sierrita-Esperanza Pit and the Twin Buttes Pit will entirely contain any potential groundwater discharges from the extended waste rock piles. Accordingly, no changes to the points of compliance or the monitoring requirements are required as part of this amendment.

IV. STORM WATER AND SURFACE WATER CONSIDERATIONS

The mine and plant site areas are contained within the west flank of the Santa Cruz River Basin. The Santa Cruz River is an ephemeral stream through this reach. There are no nearby surface water bodies. The main surface water drainages through the project area are Demetrie and Esperanza Washes. Both drainages are ephemeral and flow in a southeast direction towards the Santa Cruz River.

A stormwater diversion channel will be constructed to divert runoff from the watershed areas upstream of the RS-2 and RS-3 Rock Piles and ultimately return flows to the Demetrie Wash. The approximately 6 mile long channel begins on the west side of the RS-2 Rock Pile and west of the Sierrita-Esperanza Pit to divert the runoff from the watersheds draining the east flank of the Sierrita Mountains. The channel alignment circles the west, north, and east sides of the waste rock pile extension areas and terminates upstream of the existing railroad culverts on Demetrie Wash. Runoff from the slopes of the rock piles will be diverted to the pit or to stormwater detention features located near the toe of the piles.

Stormwater and non-stormwater are collected in several small impoundments in Tinaja Wash and several un-named washes that flow into Esperanza Wash. Stormwater and non-stormwater from Amargosa Wash and stormwater from the upper Demetrie Wash are diverted through the lined Duval Canal into the Sierrita Tailing Impoundments.

V. COMPLIANCE SCHEDULE

The Compliance Schedule is provided in Section 3.0 of the permit.

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

Freeport-McMoRan Sierrita 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).

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

Freeport-McMoRan Sierrita Inc. has demonstrated the financial responsibility 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-A203. The permittee is expected to maintain financial capability throughout the life of the facility. ADEQ approved the closure costs of \$202,805,529 and post-closure cost of \$14,694,840. The permittee provided financial capability for the estimated Net Present Value (NPV) of the closure and post-closure costs in the amount of \$171,004,739. 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 Comment Period (A.A.C. R18-9-109(A))

The Department shall accept written comments from the public prior to granting the significant amendment. The public comment period is in effect from May 17, 2017 to June 22, 2017. Comments may be submitted in writing to: Maribeth Greenslade, ADEQ, Groundwater Section, 1110 West Washington Street, MC5500E-3, Phoenix, AZ 85007 or via email mg3@azdeq.gov. Comments must be received or postmarked by June 22, 2017.

Public Hearing (A.A.C R18-9-109(B))

A public hearing will be held at the Community Performance & Art Center, 1250 W. Continental Road, Green Valley, Arizona, on June 22, 2017 at 6:00 p.m. The purpose of the

hearing is to allow the public to make comments for the record. ADEQ will respond in writing to all comments submitted during the public comment period.

VIII. ADDITIONAL INFORMATION

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

Arizona Department of Environmental Quality
Water Quality Division – Groundwater Section
Attn: Maribeth Greenslade
1110 W. Washington St., Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-4578

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