



# Fact Sheet

Aquifer Protection Permit  
 Place ID 1567, LTF 49162  
 Significant Amendment  
 Freeport-McMoRan Sierrita Inc.

The Arizona Department of Environmental Quality (ADEQ) proposes to issue 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

### Regulatory Status

The Freeport-McMoRan Sierrita mining operations are operating under a Notice of Disposal received January 21, 1985. Cyprus Mining Company bought the property in 1986 and a pre-application meeting for the Aquifer Protection Permit (APP) was held on October 12, 1993. An application for an APP, dated September 7, 1994, was received by ADEQ on November 13, 1994, from Cyprus Sierrita Corporation. Subsequently, additional information was submitted by Cyprus Sierrita Corporation in support of the APP application. Cyprus Sierrita Corporation changed its name to Phelps Dodge Sierrita, Inc. (PDSI) in 1999 as a result of a stock merger. In April, 2008, the Permittee's name was changed when Phelps Dodge Corporation acquired by Freeport-McMoRan Copper & Gold Inc.

A Multi-Sector General Stormwater Permit (MSGP 2000), #AZR05B216, exists for Sierrita, which was issued on January 28, 2001.

### **Facility Description**

Freeport-McMoRan Sierrita Inc. 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. Freeport-McMoRan Sierrita Inc. (Sierrita), previously Phelps Dodge Sierrita, Inc. (PDSI), and before that Cyprus Sierrita Corporation (CSC), 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, and leach dump, solution extraction/electrowinning.

Sierrita produces copper concentrate and cathode copper, along with molybdenum 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. Molybdenum trioxide is produced through roasting. Rhenium is also recovered in the molybdenum roasting operations.

The Sierrita property consists of three open-pits: Sierrita-Esperanza pit, a molybdenum satellite pit, and the Ocotillo pit; a 115,000-ton-per-day concentrator, two molybdenum roasting plants, a ferromolybdenum plant, a rhenium plant, an oxide and low grade sulfide dump leaching operation, and 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.

### **Amendment Description**

On June 29, 2007, ADEQ issued an APP for operation of the facilities at the Sierrita Mine. The Compliance Schedule for the APP required Sierrita to submit within twelve months of the date of permit issuance “stability analysis (static and pseudostatic) based on the facility’s final configuration (ultimate height and footprint)”, for the following facilities:

*Sulfide Active Leach Area (D-17); incorrectly referred to as Sierrita Active Oxide Leach Area (D-17) in the APP issued in 2007.*

*Oxide Active Leach Area (D-18); incorrectly referred to as Sierrita Active Sulfide Leach Area (D-18) in the APP issued in 2007.*

*West Waste Rock Piles (D-19), M Waste Rock Pile (D-47) and V Waste Rock Pile (D-56)*

On June 27, 2008, Sierrita submitted to ADEQ the Stability Analysis Report, titled “*Geotechnical Review of the Ultimate Rock Stockpile Plan at Sierrita Mine*” prepared by Call & Nicholas, Inc., satisfying the Compliance Schedule requirement. On December 16, 2008, ADEQ received an amendment application requesting an increase of the permitted height of V Waste Rock Pile (D-56) from 3,930 feet above mean sea-level (amsl) to 4,350 ft amsl by constructing a single-lift pile. The overall height of the new stockpile plan is 500 feet.

## **II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY**

Based on ADEQ’s review of the information/data provided in the referenced documents, and pursuant to A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(3) and (A)(5), it is determined that the proposed design of each of the APP facilities, identified under Comment 1, meets facility BADCT. Facility design, construction and operational parameters are consistent with the Arizona Mining BADCT Guidance Manual in that it meets the requirements of the Compliance Schedule [A.R.S. § 49-243(K)(5) and A.A.C R18-9-A208] of the afore-mentioned APP. The V Waste Rock Pile covers a surface area of approximately 30 acre feet. Runoff from the facility follows the natural drainage. Downgradient, monitor well MH-21 provides warning of any potential discharge to the groundwater. The facility shall not exceed the maximum crest elevation of 4,350 feet. The facility shall not exceed the aerial footprint shown in the Geotechnical Review of the Ultimate Rock Stockpile Plan at Sierrita Mine (Revised 21 August 2009) that forms an integral part of the APP application.

## **III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS**

### **Monitoring and Reporting Requirements**

This facility expansion lies entirely within the Pollutant Management Area of the Sierrita Mine site, which is covered by APP # P-101679.

### **Point(s) of Compliance**

Downgradient monitor well MH-21 provides warning of any potential discharge to the groundwater.

## **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. 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 submittal titled “*Geotechnical Review of the Ultimate Rock Stockpile Plan at Sierrita Mine*” from June 27, 2008, satisfied the Compliance Schedule requirement in the APP. The permittee is required to visually inspect and take appropriate action if any evidence of dump or stockpile deformation, including surface cracks, slides, sloughs, or differential settlement affecting slope stability.

## **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. The estimated closure and post-closure costs are \$17,729,265 and \$705,341, respectively. The financial capability was demonstrated through A.A.C. R18-9-A203(C)(8).

### **Zoning Requirements**

Mining activity of greater than five contiguous acres is exempt from zoning requirements pursuant to A.R.S. § 11-830.

## **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 & Drywell Unit  
Attn: Richard Mendolia  
1110 W. Washington St., Mail Code: 5415B-3  
Phoenix, Arizona 85007  
Phone: (602) 771- 4374