

**GROUND WATER DISCHARGE PERMIT MODIFICATION
FREEPORT – McMoRan TYRONE, INC., DP-166
EXPANSION OF COPPER MOUNTAIN PIT
January 26, 2010 Draft**

I. INTRODUCTION

The New Mexico Environment Department (NMED) issues this Discharge Permit Modification, DP-166, to Freeport – McMoRan Tyrone, Inc. (Tyrone) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§ 74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

The NMED's purpose in issuing this Discharge Permit Modification, and in imposing the requirements and conditions specified herein, is to control the discharge of water contaminants from the No. 2 Leach System that may move directly or indirectly into ground and surface water, so as to protect ground and surface water for present and potential future use as domestic and agricultural water supply and other uses; to abate pollution of ground and surface water; and to protect public health. In issuing this Discharge Permit, NMED has determined that the requirements of 20.6.2.3109.C NMAC have been met.

Project Description

The facilities covered under DP-166 include the Solvent Extraction / Electrowinning (SX/EW) Plant; the 2C, 4A, 4B, 4C and Copper Mountain leach stockpiles; the 7C and 8A/8C waste rock piles; and the Main, West Main, Valencia, Copper Mountain, San Salvador and South Rim open pits.

This Discharge Permit Modification addresses the expansion of the Copper Mountain Pit by deepening the pit to mine additional copper ore currently located below the pit bottom. In order to facilitate the deepening of the pit, a collection sump currently managing pregnant leach solution (PLS) will be relocated; temporary PLS management facilities will be constructed and operated during pit excavation; and a new ground water collection facility will be located in the pit bottom after pit excavation activities are completed.

The east end of the Copper Mountain Pit will be excavated 200 feet below the current pit bottom to an elevation of 5800 feet above mean sea level (amsl). The lined North Racket PLS Sump will be mined out during pit excavation, therefore interim PLS collection measures will be implemented. PLS emanating from the east wall of the pit and currently being collected in the North Racket Sump will be intercepted in a collection trench and routed to a temporary settling basin located on a lower bench within the pit. From the settling basin, the PLS will be routed to a dewatering drop-cut in the pit bottom that will also serve to collect ground water. PLS and ground water will be pumped from the dewatering drop-cut into the mine's process water circuit. Concurrently, a new synthetically lined PLS collection pond will be constructed on the 6000 foot bench on the south wall of the pit. After the collection pond is completed and the new pipeline from the collection trench to the pond is installed, the comingled PLS and ground water from the

dewatering drop-cut will be routed to a series of two temporary decant ponds and then discharged to the newly constructed collection pond. When pit excavation reaches the 6,000 foot level, PLS and ground water collection activities will be separated. PLS gathered in the collection trench will be diverted to the PLS pond and a dewatering drop-cut on each successive level will continue to collect ground water. When pit excavation reaches the final depth of 5,800 feet, a dewatering sump will be constructed in the pit bottom and ground water will be collected and pumped to the 4A raffinate booster or the 4B Leach Stockpile depending on turbidity conditions. A PLS seepage collection sump will be put in place to capture PLS seepage that has flowed historically toward the pit bottom from the south wall of Copper Mountain Pit, routing it through a pipeline to the new PLS pond. PLS in the new pond will be pumped to the SX/EW plant for processing.

Location of Discharge

The Copper Mountain Pit is located approximately 12 miles south of Silver City in Sections 21, 22, 27 and 28, T19S, R15W, Grant County.

Quantity, Quality, and Flow Characteristics of the Discharge

Some of the stockpiles of ore adjacent to the Copper Mountain Pit are leached with a sulfuric acid solution (raffinate) which removes metals from the mined ore as it passes through the stockpile. In addition to leaching, there are also waste rock piles and pit walls that contain sulfide minerals which, when oxidized, generate acid solutions. These acid solutions react with in situ minerals, which produces acid rock drainage (ARD) and associated metals and sulfate contamination. The leachate from ARD and from the leaching process has moved directly or indirectly into surface and ground water. The regulated discharges under DP-166 include raffinate and its copper-bearing equivalent PLS, mine dewatering water, stockpiled ore, waste rock and ARD. The PLS has a TDS concentration up to 100,000 mg/l. The raffinate, PLS and ARD exceed the water quality standards under WQCC Regulations in Section 20.6.3103.A NMAC for Arsenic, Cadmium, Chromium, Fluoride, and Lead; Section 20.6.2.3103.B for Copper, Iron, Manganese, pH, Sulfate, TDS, and Zinc; and Section 20.6.2.3103.C for Aluminum, Cobalt and Nickel. The maximum permitted combined discharge rate of PLS to the new Virginia Racket Sump and the No. 2 PLS Pond, and the PLS discharge rates from the 2L3 and 2L5 extraction wells shall not exceed 60,000,000 gallons per day, the same discharge rate allowed in the May 27, 2005 Discharge Permit Renewal and Modification.

Characteristics of Ground Water

Groundwater generally flows northeastward in the vicinity of the No. 2 Leach System. Depth to regional groundwater below the discharge site ranges from one foot below ground surface (bgs) at the pit bottoms to approximately 325 feet bgs at the pit rims. The total dissolved solids concentration in groundwater in the area of DP-166 ranges from 200 to 400 mg/l.

General

Tyrone's Discharge Plan consists of letters and documents submitted by Tyrone to NMED dated December 23, 2009. In addition, the discharge plan includes information and materials submitted as part of the original discharge plan approved on July 20, 1981; renewed and modified on July 20, 1986, July 20, 1991, December 16, 1997, and May 27, 2005; modified on May 26, 1982, January 30, 1989 and July 10, 2008; and amended on November 9, 1992 and January 22, 1999. The discharge shall be managed in accordance with the Discharge Plan as conditioned by the May 27, 2005 Discharge Permit Renewal and Modification and this Discharge Permit Modification.

Pursuant to 20.6.2.3109.E NMAC, NMED reserves the right to modify permit requirements in the event NMED determines that the requirements of 20.6.2 NMAC are being, or may be, violated or standards of 20.6.2.3103 NMAC are being, or may be, violated. This may include a determination by NMED that operational practices approved under this Discharge Plan are not protective of ground and surface water quality, and that a modification is necessary to protect water quality or abate water pollution. Permit modifications may include but are not limited to lining or relining impoundments, changing discharge locations, changing waste management practices, expanding monitoring requirements and/or implementing abatement of water pollution.

Issuance of this Discharge Permit Modification does not relieve Tyrone of its responsibility to comply with all conditions or requirements of the WQA, WQCC Regulations, and any other applicable federal, state, and/or local laws and regulations such as zoning requirements and nuisance orders.

II. FINDINGS

In issuing this Discharge Permit Modification, NMED finds:

1. Tyrone is discharging effluent or leachate from the No. 2 Leach System so that such effluent or leachate may move directly or indirectly into ground water within the meaning of 20.6.2.3104 NMAC.
2. Tyrone is discharging effluent or leachate from the No. 2 Leach System so that such effluent or leachate may move into ground water of the State of New Mexico which has an existing concentration of 10,000 milligrams or less of total dissolved solids within the meaning of 20.6.2.3101.A NMAC.
3. The discharge from the No. 2 Leach System is not subject to any of the exemptions of 20.6.2.3105 NMAC.

III. PERMIT CONDITIONS

In addition to the conditions specified in the May 27, 2005 Discharge Permit Renewal and Modification and the July 10, 2008 Discharge Permit Modification, Tyrone shall comply with the following conditions, which are enforceable by NMED.

1. Tyrone is authorized to collect PLS at the new North Racket Sump, Collection Wells 2L3 and 2L5, and the No. 2 PLS Collection Pond at a combined rate not to exceed 60,000,000 gallons per day. [20.6.2.3109 NMAC]
2. Tyrone is authorized to dewater the Copper Mountain Pit and transfer the water to the 4A Booster Station under normal conditions, or to the top of the 4B Leach Stockpile during storm events that increase the water turbidity [20.6.2.3109 NMAC]
3. Upon completion of the new North Racket Sump and Copper Mountain Pit Dewatering Sump, Tyrone shall collect samples semi-annually from the two sumps and analyze for the water parameters listed in Condition 23B and 23C of the May 27, 2005 Discharge Permit Renewal and Modification. Analytical results shall be reported as required in Condition 25 of the May 27, 2005 Discharge Permit Renewal and Modification. [20.6.2.3107 NMAC]
4. Tyrone shall measure the daily discharge volume of PLS to the newly constructed North Racket Sump and pit water pumped from the Copper Mountain Pit Dewatering Sump using appropriate metering devices and/or calculation methods. Discharge volumes shall be reported as required in Condition 25 of the May 27, 2005 Discharge Permit Renewal and Modification. [20.6.2.3107 NMAC]
5. Within 180 days of the date of this Discharge Permit Modification, Tyrone shall install two regional monitoring wells on west end of the Copper Mountain Pit. The locations of the wells shall be approved by NMED prior to installation. The wells shall be completed in accordance with *NMED Monitoring Well Construction and Abandonment Guidelines*. Construction and lithologic logs shall be submitted to NMED within 30 days of well completion. Tyrone shall sample the new wells and report the analytical results as required in Conditions 18.1 and 25 of the May 27, 2005 Discharge Permit Renewal and Modification. [20.6.2.3107 NMAC]
6. Within 90 days of completion of the new North Racket Sump and Copper Mountain Pit Dewatering Sump and Copper Mountain Seep Collection Facility, Tyrone shall submit as-built plans and specifications to NMED. [20.6.2.3106 NMAC]
7. Upon completion of the installation of the monitoring wells, Tyrone shall submit to NMED for approval a proposal, including a schedule, to model the effects on the ground water table in the vicinity of the pit. Based on the results of the modeling, Tyrone shall submit a cost estimate and proposed adjustment of financial assurance to cover any increased cost in pit water removal and treatment at closure. A report of the modeling results and cost estimate shall be submitted to NMED within 180 days following cessation of pit mining or the completion of well installation, whichever is completed last. [20.6.2.3107 NMAC]

IV. GENERAL TERMS AND CONDITIONS

In addition to any other requirements provided by law, approval of this Discharge Permit Modification is subject to the General Requirements as specified in the Discharge Permit Renewal and Modification approved on May 27, 2005. Refer to the Discharge Permit, DP-166, for specific information on the following General Requirements

Monitoring and Reporting

Record Keeping

Inspection and Entry

Duty to Provide Information

Spills, Leaks and Other Unauthorized Discharges

Retention of Records

Enforcement

Modification and/or Amendments

Compliance with Other Laws

5. Nothing in this Discharge Permit shall be construed in any way as relieving Tyrone of its obligation to comply with all applicable Federal, State, and local laws, regulations, permits, or orders. [74-5-5.K WQA]

Liability

6. The approval of this Discharge Permit does not relieve Tyrone of liability should the operation result in actual pollution of surface or ground water which may be actionable under other laws and/or regulations. [20.6.2.1220 NMAC]

Right to Appeal

7. Tyrone may file a petition for a hearing before the WQCC on this Discharge Permit. Such petition must be made in writing to the WQCC within thirty (30) days after Tyrone receives this Discharge Permit. Unless a timely petition for a hearing is made, the decision of NMED shall be final. [74-6-5.N WQA]

Transfer

8. Prior to any transfer of ownership, control, or possession of the permitted facility or any portion thereof, Tyrone shall notify the proposed transferee in writing of the existence of this Discharge Permit and include a copy of this Permit with the notice. Tyrone shall deliver or send by certified mail to the NMED a copy of the notification and proof that such notification has been received by the proposed transferee. [20.6.2.3111 NMAC]

Term

9. The effective date of this Discharge Permit Modification is the date it is issued and signed by the Chief of the Ground Water Quality Bureau. The term of this Discharge Permit Modification is the same as the May 27, 2005 Discharge Permit Renewal and Modification and will automatically expire on May 27, 2010. To renew this Discharge Permit, Tyrone must submit an application for renewal at least 120 days before that date. [74-6-5.H and 20.6.2.3109.H NMAC]

Issued this ____ day of _____, 2010

William C. Olson, Chief
Ground Water Quality Bureau
New Mexico Environment Department

Under authority delegated by the Secretary of the New Mexico Environment
Department