

Fact Sheet

(Pursuant to Nevada Administrative Code (NAC) 445A.401)

Permittee Name: **Newmont Mining Corporation**
Twin Creeks – South Project

Permit Number: **NEV0089035 (Renewal 2013)**

Location and General Description of Facility

Location: The Twin Creeks – South Project is located on public (Bureau of Land Management) and private land in Humboldt County, Sections 16-21, and 28-32 of Township 39 North, Range 43 East, and Section 24 Township 39 North, Range 42 East, Mount Diablo Base Line and Meridian, approximately 35 miles northeast of Golconda, Nevada.

General Description: The project consists of open-pit mining with processing of up to 80,000,000 tons of ore per year by conventional heap leach cyanidation and milling, with precious metal recovery by carbon adsorption and zinc precipitation (Merrill-Crowe process). The facility is required to be designed, constructed, operated, and closed without any discharge or release in excess of those standards established in regulation except for meteorological events which exceed the design storm event.

Synopsis

The Twin Creeks Mine operates under two Water Pollution Control Permits (NEV0086018 – North; NEV0089035 - South). The line that divides the two Permits is the Midway Fuel Facility, which is included in the South Permit, located in Section 18. Because the Mega Pit is located south of the Midway Facility, waste rock sampling and pit lake water quality prediction is reported under WPCP NEV0089035 – South Project. The Vista Pit is located in the North project and all sampling and reporting is transmitted under WPCP NEV0086018.

If water will accumulate in the pit, the permittee must submit, with every 5 year Permit renewal, a Pit Lake Water Quality Study and Model Update showing that all mined areas do not release contaminants that have a potential to degrade waters of the State pursuant to Nevada Administrative Code 445A.429. Geochemical test results of samples from the pit bottom/wall rock are continuously evaluated and waste rock is managed in accordance with the Twin Creeks Mine Materials Handling Plan (ref. documents dated 7/95, w/changes on 2/96, 8/00, 7/01, and 5/02). Diversion structures will convey runoff around the pit into natural drainages.

A ‘proto pit lake’ formed in 2004 when mining occurred below the water table. Continued dewatering of the Mega Pit brought the water table down and in late 2007, the ‘proto pit lake’ disappeared. The present mine plan does not call for any reduction in dewatering, thereby preventing formation of the lake. However, the monitoring requirements for the Permit have been revised to include sampling and measurement of the extent of the pit lake, should it reform at any time in the future.

The beneficiation of the ore is accomplished through heap leaching using dilute cyanide solution. A dilute solution of sodium cyanide, at a pH of between 9.5 and 11 S.U., is applied at a rate of 0.0025 to 0.004 gallons per minute. After passing through the heap, the pregnant solution is directed to the pregnant pond or intermediate pond depending on the contained gold content. The pregnant solution is pumped to the processing plant for precious metal recovery via carbon columns. The loaded carbon is transferred to one of the two strip circuits on the mine site for metal recovery from the carbon. The precipitate is retorted and smelted at the Juniper Mill for shipment to a refinery.

In the past, a second processing circuit had been used as well in which ore was fed into the Semi-Autogenous Grinding (SAG) mill forming a pulp that was fed to a thickener. Thickener overflow was directed to a series of carbon-in-leach (CIL) tanks for removal of precious metals. The barren slurry was passed through a carbon screen prior to being pumped to the tailings impoundment where it was subaerially deposited. The loaded carbon was stripped, then processed through either a Merrill Crowe or electrowinning system. The precipitate was then retorted and smelted at the Juniper Mill for shipment to a refinery. All equipment including tanks, thickeners, vessels, pumps, and piping operated within secondary containment equal to or greater than 110% of the largest volume within a given area. Any spilled process solution would report to secondary containment sumps where it was pumped back into primary containment. Spent pulp or “slurry” was directed to the tailings impoundment via high density polyethylene (HDPE) pipelines located within a HDPE-lined secondary containment ditch.

This milling circuit has been inactive since October 2002 with the exception of the carbon stripping circuit. The closure process for the Piñon Tailings Storage Facility was initiated in late 2007. Any future operations of the Piñon mill would thus require the construction of a new tailings storage facility, connection to the active Juniper Tailings Storage Facility, and/or other alternatives. All monitoring requirements of the existing Permit remain in place.

The Piñon Tailings Storage Facility was taken out of service in 2001. Reclaim fluid from the facility was monitored for several years by groundwater and vadose wells. In 2007 closure was initiated with the capping of the facility. Water from wells MW-29-6 and MW-2R-1 has been pumped into the seepage pond since 1999. Since that time, these two wells are the only monitoring locations which have shown higher trending levels of chloride, nitrate, sulfate, and total dissolved solids (TDS – with exceedances of the Profile I reference values in MW-2R-1 of nitrate [15.5 mg/L] and TDS [1,250 mg/L] in the second quarter of 2004). This pumping will continue until the data from the vadose

wells indicate that the percolation of fluids carrying monitored constituents has abated. As an additional measure, a continuous pumping and monitoring program for MW-3 was added in early 2009 as well, which completed SOC Item 2 from the 2008 renewal Permit.

A non-fee approval was given on 01 August 2007, to upgrade the existing Pregnant and Intermediate solution pipelines by inserting a 6-inch diameter HDPE pipeline inside the existing 10-inch diameter HDPE pipelines to provide pipe-in-pipe secondary containment over the entire pipeline transect, which consists of both above- and below-ground sections. Each 6-inch diameter primary pipeline is designed to convey solution at up to 600 gpm, between the process ponds and the Piñon Mill CIC circuit, in either direction.

Four heap leach pad phases have been permitted and constructed totaling seven million square feet. Phase I is 0.75 million sq. ft., Phase II is 2.3 million sq. ft., Phase III (A and B) is 1.98 million sq. ft. and Phase IV is 1.96 million sq. ft. Individual ore lift heights (approximately 50 feet each) and bench widths are controlled, based on engineering evaluation and recommendation, to ensure physical stability. The heap height is limited to 300 feet above the top of the synthetic liner.

In January of 2009, an EDC was submitted and approved which added Hydro-Jex operations to the Osgood heap leaching facility. As approved, the system allows for the drilling of wells in the heap at least 50 feet from the crest and at least 100 feet from any previously installed adjacent wells. Each well will be subjected to a short duration, high pressure stimulation phase intended to open pathways for improved solution infiltration. This will be followed by long term static head infiltration of solution for gold recovery. Total solution application rate by Hydro-Jex is limited in the Permit to 4,500 gpm. Operational limitations and reporting requirements are included in the Permit.

The leach pad is lined with a single layer of 60-mil HDPE and is divided into “cells” that are bermed on the downgradient side to promote lateral flow to the external, 60-mil HDPE synthetically-lined open channels (i.e. collection ditch) that direct the pregnant solution to either the pregnant pond or intermediate pond. Beneath the synthetic liners, on the upgradient side of each berm, a prefabricated “wick drain” is designed and constructed to allow the recovery and evacuation (by gravity) of process solution that escapes primary containment. The individual wick drains connect to 2-inch PVC pipes that report to an 8-inch diameter sump for monitoring. These sumps, when full, overflow to a central 4-inch diameter PVC pipeline which daylights at the process ponds for visual monitoring and quantification.

A nominal one-foot thick soil subbase, that has a maximum permeability of 1×10^{-6} cm/sec, underlies the entire synthetic liner of the leach pad and collection ditches. The synthetic liner is keyed into the soil embankments and ditch berms surrounding the pad. Within the heap leach pad, a nominal 18-inches of “clean” liner cover is placed on the 60-mil synthetic liner which covers the hydraulic relief pipes.

Two inch diameter perforated HDPE pipelines detect leakage in individual segments of the collection ditches. The sumps, used for monitoring the collection ditches, overflow to a central pipeline to the ponds like the pad leak detection systems.

In the first quarter of 2012, flow began to increase in heap leach pad leak detection ports LEP-8, LEP-10, LEP-18, and LEP-30, peaking in the second quarter of 2012 at approximately 2,050 gallons per day (gpd), 1,100 gpd, 5,500 gpd, and 975 gpd, respectively. The Permittee took action to reduce the flow by suspending solution application in the areas of the pad corresponding to the leak detection ports with high flow and monitoring of adjacent groundwater was enhanced by the addition of MW-7 (downgradient monitoring well). Analysis of samples from all monitoring wells in the area of the heap leach pad have shown no evidence that process solution has escaped secondary containment. Flows decreased somewhat in response to the modified application pattern but have remained well above Permit limits. In the first quarter of 2013, the Permittee suspended cyanide addition to the process solution, use of the Hydro-Jex system, and addition of make-up water. The Permit requires that these measures continue and that a final plan for permanent closure of the heap leach pad be submitted to the Division on or before December 31, 2013.

There is a pregnant pond, a barren pond, an intermediate pond and an overflow pond adjacent to the heap leach pad. The capacity of each, at 2 feet of freeboard, is 2,903,680 gallons (pregnant and barren ponds), 6,212,620 gallons (intermediate pond), and 7,414,284 gallons (overflow pond). These ponds are interconnected such that, in the event of power outages or severe storm events, excess solution from the pregnant, barren and intermediate ponds will drain into the overflow pond. The ponds include double synthetic 60-mil HDPE liners with geonet in-between to provide a preferential path for any leakage through the primary liner. The pond bottoms grade toward leak detection sumps that are filled with three feet of free-draining sand. An 18-inch diameter perforated pipe extends up the slope from each sump from where accumulated fluids may be monitored/evacuated and samples taken. The recovery pipes are capped at the surface to preclude meteoric water from entering the system.

There are two single layer HDPE lined basins. The first is located adjacent to the tailings pipelines for secondary containment and collection of meteoric waters in the area. The second is for containing water that originates primarily from the truck wash but also from the three shops (Mega, Transportation and Welding). The water from the truck wash and shops is first sent through a series of oil/water separators, which include oil absorbent booms, to remove all hydrocarbons before arriving in the basin. The solids are periodically removed from the separators to a contained hydrocarbon management facility. Water from both basins is mainly evaporated but some is used for dust suppression or used, on occasion, within the fluid management system.

All process components are designed to contain flows resulting from the 25-year, 24-hour storm event and designed to withstand runoff resulting from the 100-year, 24-hour storm event. Back-up power is available.

Petroleum-Contaminated Soil (PCS) Management Plan. A PCS Management Plan was approved as an EDC in July 2012, authorizing on-site disposal of PCS on the Stacker (W4) alluvium Overburden/Interburden Storage Area (Stacker OISA). Prior to management under the plan, hazardous waste determinations must be performed to demonstrate that the PCS is not hazardous waste. Hazardous waste must be managed and disposed of in accordance with applicable regulations. On-site disposal of PCS is also contingent on the results of periodic screening analyses, which must show that the PCS does not exceed screening levels for various organic constituents established via risk assessment. Otherwise, the PCS must be properly disposed of off-site. PCS may be stored on temporary holding pads 1 through 6 (former bioremediation pads 5, 10, 15, 3, 8 and 13, respectively) while screening analyses are performed, or it may be provisionally placed at one of the approved disposal locations provided that it will be removed and properly disposed of elsewhere if it exceeds screening levels during subsequent screening analyses. Various time limits and other stipulations in the plan apply to temporary storage and provisional placement of the PCS.

Site Hydrology/Hydrogeology and Background Groundwater Quality

The facility is located in the Kelly Creek drainage basin, a tributary to the Humboldt River system. Pre-dewatering depth to groundwater varied depending on the location but was generally greater than 100 feet below ground surface (bgs). The quality of the groundwater generally meets Profile I standards except for exceedances for manganese and iron.

Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the facility to construct, operate and close, subject to the conditions within the Permit, is being sent to the **Humboldt Sun** for publication. The Notice is being mailed to interested persons on the Bureau of Mining Regulation and Reclamation mailing list. Anyone wishing to comment on the proposed Permit can do so in writing within a period of 30 days following the date of public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected intrastate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.403 through NAC 445A.406.

Proposed Determination

The Division has made the tentative determination to issue the Permit.

Proposed Effluent Limitations, Monitoring, Schedule-of-Compliance and Special Conditions

See Section I of the Permit.

Rationale for Permit Requirements

The facility is located in an area where annual evaporation is greater than annual precipitation. Therefore, it must operate under a standard of performance which authorizes no discharge(s) except for those accumulations resulting from a storm event beyond that required by design for containment.

The primary method for identification of escaping process solution will be placed on required routine monitoring of leak detection systems as well as routinely sampling downgradient monitoring wells and surface water. Specific monitoring requirements can be found in the Water Pollution Control Permit.

Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 U.S.C. 701-718, it is unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 CFR 10, 15 April 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with State permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife.

Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (e.g by covering with netting), and 2) chemical detoxification. These approaches may be facilitated by minimizing the extent of the toxic water. Methods which attempt to make uncovered ponds unattractive to wildlife are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

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