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

Permittee Name:	**Barrick Gold Exploration, Inc.**
Project Name:	**Storm Underground Mine Project**
Permit Number:	**NEV2004109**
Review Type/Year/Revision:	**Renewal 2016, Fact Sheet Revision 00**

A. Location and General Description

Location: The Storm Underground Mine is located in Elko County, approximately 30 miles northwest of Carlin, Nevada. The mine is located in Township 36 North (T36N), Range 49 East (R49E), Sections 3, 4, and 9 and T37N, R49E, Sections 27, 33, and 34, Mount Diablo Baseline and Meridian. The mine is accessed through the pit wall of the former Dee Gold Mining Company Dee Pit.

General Description: The project consisted of the underground mine with support facilities such as maintenance shop and a staging area located in the existing Dee Pit for ore and aggregate, fuel storage, vehicle wash bay, a lay down yard, and two portable batch plants. Ore from this mine was stockpiled, transported, and processed at the Barrick Goldstrike North Block Project (Goldstrike) (NEV0091029) approximately 4 miles from the Storm Underground Project. Waste rock generated from prior mining under this Permit will remain in the pit until the future expansion of the Arturo Mine Project (NEV2013101) will require the relocation of the material. The project is located on unpatented mining claims administered by the Bureau of Land Management, Elko District Office, Tuscarora Field Office. All support facilities, underground and above-ground, have been removed, only the two portal entrances remain open – the project is in closure. The FPPC was approved by the Nevada Division of Environmental Protection on February 29, 2016.

B. Synopsis

Water Pollution Control Permit (WPCP) NEV2004109 was first issued to Barrick Gold Exploration, Inc. (Permittee) in 2004, was last renewed in 2010, and expired May 15, 2015. This is a renewal of the Permit for closure of the underground mine operation and will expire May 14, 2020.

Exploration drilling, both underground and surface, identified three ore zones that, in combination, comprised the Storm Underground Mine Project. The three ore zones referred to as the 49'er Zone, the End Zone, and the Discovery Zone, which occur at depths of 800 to 1,500 feet (ft.). below the surface. In addition, the Lower Dee Zone and South Dee Pit Target are former underground extensions of ore bodies previously mined by the Dee Gold Mining Company via their surface and underground operations.

A 3,400-ft. ramp (Storm Decline) is used to access the 49'er Zone. An extension of the decline, as well as access ramps to the mining areas, was developed as 15-ft. wide by 15-ft. high tunnels. Additional drifts were used to access the other identified ore zones for delineation and development.

Future expansion of the Arturo Mine Project will result in mining through the portal(s) and decline(s) to an elevation of approximately 4,900 ft. above mean sea level (AMSL).

Geology

The Storm Underground Mine is located in the historic Bootstrap Mining District along the northern terminus of the Carlin Trend. The mine is located on a structural window where the Bootstrap Limestone has been uplifted along major fault zones. In general, the stratigraphy at the mine is described as Paleozoic chert with interbedded shale and limestone lenses that are overlain by a sequence of Quaternary and Tertiary alluvium, colluviums, and volcanic deposits. The geology of the mine is in Devonian Bootstrap limestone and silicified limestone.

Open Pit

The Dee pit did not intercept the groundwater table, therefore no active dewatering was required. Due to dewatering operations at Goldstrike, and since June 1988, the groundwater elevations have dropped to pre-Storm mining elevations. The Permittee did not conduct open pit mine development at Storm. Shallow groundwater was not encountered in the underground mining operations.

Monitoring of the Dee pit (Dee) consists of designating pit surface as dry, damp, or wet (visible flow or ponding). If a large amount of persistent ponded water is present, a representative sample will be collected by the Permittee and analyzed for a Division (NDEP) Profile III. A field pH and field Specific Conductance (SC), reported as Total Dissolved Solids (TDS), together with photos and dimensions of the ponded areas(s) shall be provided. The Permittee is required to investigate the source(s) of persistent ponded water and inspect the pit for stability, safety and accessibility.

Underground Mining

Ore and waste rock were mined using a drift and fill method with a retreating panel sequence. The method consists of excavating horizontal ore cuts through the ore body using standard underground development techniques. The resulting opening is then backfilled using shotcrete and cemented rock fill or waste rock. The process is then repeated in a retreating manner until the 15-foot high horizontal section of ore has been depleted. Estimates indicate tonnage rates of approximately 1,000 tons of ore production per day and waste rock tonnage rates of approximately 200 tons per day.

Evaporative Mineral Precipitates

During a Bureau of Mining Regulation and Reclamation (BMRR) site inspection conducted in 2011, Division personnel discovered evaporative mineral precipitates (EMPs) located in the lower levels of the workings (below approximately 4,800 foot AMSL). The nature and extent of EMP salts that form were evaluated by the Permittee.

Underground mining at Dee (Storm) intersects highly mineralized rock zones, which locally are de-calcified and enriched in silica and sulfides. Abundant efflorescent salts are found in discrete areas where sulfide-enriched rock with low neutralizing potential is intersected by fractures. EMP formation appears to be strongly influenced by desiccation since the ionic strength of solutions seeping through the wall is much lower than that necessary to form these highly soluble salts. Desiccation causes an increase in sulfate and metals levels, as well as acidity, and results in formation of many exotic hydrated acid-sulfate salts of iron, aluminum, manganese, zinc, copper, and cobalt. Dissolution of the EMPs in distilled water results in low pH and high acidity.

EMP enrichment zones are confined to less than a 1 percent area of the underground wall rock and are also limited to the rock-void interface. Consequently, the abundance of EMPs is presumed to be quite small in relationship to the void space of the entire underground mine. Nearly 95 percent of mine voids have been backfilled with either cemented rockfill or cemented paste tailings. The remaining approximately 5 percent remain as open mine voids.

The Division and Permittee collaborated to develop an engineering solution to prevent the flow of air, eliminate evaporation and further precipitation/formation of EMPs, the Permittee submitted an Engineering Design Change (EDC) for the construction of pressure-grouted, airtight bulkheads in the Storm mine above the zone of greatest EMP development and below the anticipated base of the North Arturo Pit. The EDC was approved by the Division in May 2015 and construction completed in February 2016.

Waste Rock Stockpile (WRS)

During active operations, waste rock encountered was characterized by analyzing leachate from Meteoric Water Mobility Procedure (MWMP) and by determination of Acid Generating Potential vs. Acid Neutralizing Potential (AGP/ANP).

Waste rock generated was placed in the main pit area or within a Potentially Acid Generating (PAG) satellite pit which is located in the southeast corner of the Dee Pit. In June 2008, the Permittee submitted a corrective action plan stating that all waste rock would be deposited within the PAG-satellite pit and would no longer be placed in the main pit area of the Dee pit. With the 2008 corrective action plan, all waste rock has been placed within the PAG-satellite pit. The PAG-satellite pit has been predicted to be above the post-mining groundwater table which is projected to be approximately 5,100 ft. AMSL. Prior to placement of waste rock in the PAG-satellite pit, non-acid generating material (minimum 10-foot limestone base) was placed in the bottom of the satellite pit to provide a base for encapsulating the PAG material. The existing PAG waste rock stockpile, located within the southeast corner of the Dee Pit will be re-mined and relocated within the Arturo waste rock disposal areas.

The Permittee is required to inspect the WRS (annually) for mass, surface stability, seepage, and designate surfaces as dry, damp, or wet (visible flow or ponding). If any seepage is emanating from any portion of the waste rock stockpile, the Permittee shall collect a representative sample and analyze for Division Profile I parameters. The Permittee shall conduct field pH and SC reported as TDS. Photos of the seepage area shall also be taken and document the event in the annual monitoring report.

Buildings/Structures

During active operations, ancillary facilities included two water storage tanks, storage container areas, electrical compressor pad, portable batch plants, vehicle wash bay, and a fuel storage containment area. Water used for this project originated from an existing Dee Gold Mining Company water supply well that was pumped to the water tanks. Containment is provided for the fuel storage containment area equal to 110% of the largest fuel tank. Blasting agents such as ammonia nitrate fuel oil mixture supplied in 50 pound sacks were stored in an underground magazine.

The original mine plan called for construction of underground facilities for maintenance and refueling of vehicles. However, these facilities were never built and all vehicle maintenance and fuel handling was done at the shop located adjacent to the mine portal.

In September 2006, the Permittee submitted an EDC proposing to construct a vehicle wash facility in the pit adjacent to the portal. The facility included the wash pad and sediment trap containment, a 2,880 gallon high density polyethylene oil/water reclaim tank and associated piping. The EDC was approved by the Division in October 2006 and construction was completed in March 2007.

Management of Petroleum Contaminated Soil (PCS) for the site is covered by the approved PCS Management Plan for the North Block Project NEV0091029. All testing and disposal activity for the Storm Underground is to be included in the report for North Block. This includes a hazardous waste determination which must be made prior to shipment of the subject material off-site.

Site Closure Plan

A revised Final Plan for Permanent Closure (FPPC) was submitted June 29, 2015 and formally approved by the Division February 29, 2016. The FPPC requires consists of removal of all underground and surface facilities, construction of airtight bulkheads in each of the Dee and Storm portals, and closure of the portals at the pit surface.

The vehicle wash bay and fuel facilities were closed out in 2015.

As of February 2016, construction of the bulkheads has been completed. With this completion, all electrical and ventilation was been removed from the underground workings.

C. Site Hydrology and Background Water Quality

There are two groundwater flow regimes at the site: several discontinuous shallow zones of perched groundwater and a regionally extensive carbonate aquifer at depth. There is no hydraulic contact, and very limited flow, between the local systems and the regional aquifer.

There are no streams, creeks, or springs within the immediate project area. There are no surface water bodies down gradient of Storm. However, Boulder Creek is within one-half mile down gradient of the Dee Pit area. Local discharge of perched groundwater contributes to flow in Boulder Creek. The regional aquifer is disconnected from Boulder Creek as the water table, due to ongoing dewatering operations related to the Goldstrike operation, is at approximately 3,515 ft. AMSL, far below the level of the creek bed elevation.

As part of the Arturo project North pit, which will impact portions of the Storm Underground, a pit lake water quality study was conducted by the Barrick-Dee

Mining Venture in January 2013, and indicated that after approximately 400 years following mine closure and cessation of dewatering at Goldstrike, groundwater is expected to eventually recover to about 5,100 ft. AMSL, and result in the formation of a pit lake. Portions of the Dee pit/Storm Underground will be mined-out to an approximate depth of 4,900 ft. AMSL.

The study indicates that the Storm Underground Workings will not impact pit lake quality. The primary source of recharge to the underground mine will be groundwater from the regional carbonate aquifer. It is estimated that the recovery of groundwater levels at Storm would begin to flood the underground workings around year 2065.

Groundwater Model

Groundwater flow was modeled to determine the effects of the Storm Underground Mine on long-term groundwater quality and to ascertain the proportional contribution of evaporative mineral precipitates to overall groundwater chemical loading.

The analysis consisted of two components. First, the rate of groundwater recovery - after the end of mine dewatering at Goldstrike was evaluated. The hydrologic model included a particle tracking assessment to predict the rate and direction of groundwater flow through the Storm Mine. The second phase entailed prediction of groundwater quality. The Division is concerned about the potential effects of underground mines on the water quality in the Carbonate Aquifer. One particular concern is the effect that acidic EMPs that form in portions of the development headings may have on water quality. These effects were evaluated through use of a model sensitivity analysis where various assumptions about the Storm Mine, including presence or absence of evaporative mineral precipitates, were varied to evaluate effects on predicted downgradient groundwater. Modeling of the potential effects of the underground mines on the rate of recovery of the Carbonate Aquifer and the effects on water quality consisted of:

- Estimation of void volumes in the mines as a function of elevation;
- Comparative evaluation of groundwater recovery - with and without consideration of the underground mine voids;
- Predicting the flow rate and flow direction for groundwater that flow through the mine voids;
- Assessment of likely water quality that will develop in the mine void as the system floods;
- Predicting chemical transport from the underground mines; and
- Overall assessment of effects on the Carbonate groundwater.

Groundwater that refloods the Storm Mine is predicted to remain static for nearly 150 years, then will move to the west between year 150 and 250 with an estimated travel distance of approximately 3,300 ft. The overall flux through the mine is

zero for about 100 years after dewatering ends and then gradually increases to 15 gallons per minute (gpm) after 250 years (over the following 15 years). The groundwater contribution to the Carbonate Aquifer is much smaller than the infiltration from the open pits, which would range up to 90 gpm in the first 100 years of groundwater recovery. Potentially affected groundwater is expected to remain more than 1,000 ft. below ground surface in the volcanic unit west of the Storm mine area. The main effect on the Carbonate groundwater will be higher calcium and sulfate levels. Sulfate is predicted to remain below 500 milligrams per liter (mg/L). The increased major ions levels that result from interaction with the underground mines is similar to the changes in groundwater that are predicted when water flows through the weathered highwall in a pit lake. Most metals are predicted to remain below Division Profile I reference values except for locally higher values in close proximity to the Storm mine void. The model predicts that arsenic, antimony, nickel and thallium will exceed reference values more than a few hundred meters from the Storm workings.

The factors that most strongly influenced metal behavior were the proportions of water in mine voids and in the Carbonate rocks, the amount of ferrihydrite precipitates that will form and the amount of ion exchange capacity and whether ions were allowed to undergo exchange reactions. The presence or absence of evaporative mineral precipitates was a significant factor that contributed to groundwater transport for thallium and nickel, but eliminating evaporative mineral precipitates would not cause these elements to decline to below reference values. The predicted groundwater effects from metals was mostly associated with metal release from PAG wall rock in open voids, independent of evaporative mineral precipitates.

Carbonate aquifer water quality is defined as a calcium-magnesium bicarbonate type with generally low concentration of total dissolved solids. The pH is in the neutral range. Manganese is the only constituent noted above the Nevada Profile I reference values.

D. Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the facility to close and monitor this mine subject to the conditions contained within the Permit, is being sent to the **Elko Daily Free Press** 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.

E. Proposed Determination

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

F. Proposed Limitations, Schedule of Compliance, Monitoring, Special Conditions

Except as detailed in the Permit, no proposed limitations or special conditions are stipulated.

G. Rationale for Permit Requirements

The facility is in closure. 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 potential degradation will be placed on groundwater monitoring in the predicted flow path of groundwater leaving the Storm underground workings. Due to the on-going dewatering operations and the potential for localized groundwater degradation in the area of the underground workings and groundwater flow path, this closure Permit will remain in effect and will not be placed into a post-closure monitoring status until the groundwater level has fully recovered and stabilized to the predicted level of approximately 5,100 ft. AMSL, which is expected to occur in approximately 250 years, and the potential impacts from the presence of the EMPs and mineralized rock have been fully monitored/determined downgradient and along the flow path of groundwater discharging from the Storm underground mine workings. Specific monitoring requirements can be found in the Water Pollution Control Permit.

H. Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 U.S. Code 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 Code of Federal Regulations 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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