

FACT SHEET

(Pursuant to Nevada Administrative Code (NAC) 445A.236)

Permittee Name: **Barrick Gold Exploration Inc.**

Project Name: **Goldrush Exploration Project**

Permit Number: **NEV2014116 (New 2014, Fact Sheet Revision 00)**

A. Location of Discharge

The Goldrush Exploration Project is located in Eureka County, within Sections 1-36, Township 26 North (T26N), Range 49 East (R49E); Sections 1, 2, and 12, T25N, R48E; Sections 1, 12, and 13, T25N, R48.5E; Sections 4-7, T25N, R49E, Sections 5-8, 17-19, 30, and 31, T26N, R50E; Sections 1-4, 9-16, 21-27, 35, and 36, T26N, R48E; and Sections 33-36, T27N, R48E, Mount Diablo Baseline and Meridian, approximately 20 miles south-southeast of the town of Crescent Valley, Nevada. The Project is located on public land administered by the U.S. Bureau of Land Management (BLM). The eastern (Pine Valley) portion of the Project is overseen by the BLM Tuscarora Field Office in Elko, and the western (Horse Canyon) portion of the Project is overseen by the BLM Mt. Lewis Field Office in Battle Mountain.

To access the Project from exit 261 on Interstate 80 (approximately 28 miles east of Battle Mountain), drive south past Beowawe and Crescent Valley on Nevada State Route 306 approximately 31 miles. Turn left (southeast) and drive approximately 3.5 miles on Lander County Road 222, then turn right (southwest) and drive approximately 1.25 miles on the Rocky Pass Road. Turn left (southeast) and drive approximately 15.5 miles on the Cortez Canyon/Grass Valley Road, then turn left (east) and drive approximately 1 mile on the JD Ranch Road. Turn left (north) and drive into the southwest portion of the Project area on a Goldrush Exploration access road.

B. Description of Discharge

The Project is an on-going exploration drilling operation for the purpose of defining the previously discovered Goldrush gold deposit and its hydrogeologic setting. The State of Nevada Division of Environmental Protection (Division) previously issued Temporary Discharge Permit TNEV2013113 for the same Project, although a different project name was previously used: Horse Canyon-Cortez-West Pine Valley Exploration Project. TNEV2013113 expired on 14 September 2014, necessitating the Permittee to obtain this five-year Discharge Permit NEV2014116 (Permit) to continue the intermittent discharges associated with the Project.

The Permit authorizes a total maximum daily surface discharge of 1,296,000 gallons per day (gpd) from the entire Project, but the discharges are intermittent and are not expected to reach the maximum daily limit. The Permit also limits the instantaneous rate of discharge from each drill sump to 300 gallons per minute (gpm) to reduce the potential for erosion.

The Permittee intends to drill up to 260 boreholes at the Project site in 2014, and an unknown, but potentially similar or greater, number in subsequent years. The number of boreholes is not limited by this Permit, but all boreholes and sumps must be located within the specified Project area and must comply with all Permit requirements. The location of all active drill sumps must be identified in each quarterly monitoring report, along with a notice of new discharges in accordance with NAC 445A.258, subsection 1.

The outfalls for surface discharge are earthen sumps used to collect drilling water and mud adjacent to the boreholes. The drilling water is managed to preclude surface discharges when possible, but in some cases the available sump capacity is exceeded and excess drilling water is discharged to the surrounding land surface. Because the earthen sumps do not include engineered containment, discharge to groundwater also occurs as drilling water infiltrates into the subsurface through sump walls and bottoms. Discharge to groundwater may also occur as infiltration along the flow path of a surface discharge.

Hydrologic pump tests of boreholes or wells may be performed under this Permit only if compliance is maintained with all Permit requirements. If this may not be possible (for example, if the pump test discharge flow rate will exceed Permit limits, or if it is anticipated that the pump test water may flow into an existing surface water body, other than as a result of a concurrent storm event), a separate permit must be obtained prior to such testing.

The Project area is divided into six adjacent hydro-geographical sectors, which are illustrated in the Permit application. The sectors are based on hydrographic sub-basin watershed boundaries. Most of the boreholes and sumps are expected to be located in Sector 6, which includes the upper Horse Creek drainage (northwest portion of Project area), as this is the area overlying the main Goldrush gold deposits discovered to date. The majority of the boreholes will be drilled for geological exploratory purposes and will be plugged and abandoned immediately after drilling, but others will be drilled for hydrologic purposes and will be completed as monitoring wells or piezometers for routine monitoring for an unspecified period of time. The hydrology boreholes typically use less drilling mud and produce more water than the exploration boreholes. Following the completion of drilling and monitoring activities, all boreholes will be plugged and abandoned pursuant to Nevada Division of Water Resources regulatory requirements and the sumps will be backfilled and regraded.

At each borehole, drilling fluid, which consists of water, drill cuttings, and drilling additives, is typically pumped to a dual-chambered earthen sump, with the chambers designated as “Sump A” and “Sump B.” The shared sump wall between the chambers is topped with weed-free straw bales or wattles. The drilling fluid is pumped to Sump A, which captures the coarse cuttings and some of the suspended solids (drilling mud). Overflow from Sump A filters through the straw bales/wattles to Sump B, where the drilling fluid is further clarified via settling. When a surface discharge appears imminent, the Permittee typically employs a pump to convey drilling water out of Sump B rather than allowing an uncontrolled sump overflow. Best management practices (BMPs) shall be utilized to clarify the drilling fluid at each surface discharge, and to dissipate the energy of the discharge for the purpose of minimizing erosion and sediment transport. Each active sump is monitored, sampled, and analyzed for Profile I parameters, and the surface discharge flow rate is measured or estimated, as best as practicable, for reporting and comparison with Permit limits.

The Permit prohibits the addition of chemicals to the discharge water, except as approved by the Division based on safety data sheets (SDSs) and proposed usage concentrations submitted by the Permittee, and in some cases on data obtained from other available literature. Table 1 lists the drilling additives that have been approved for use at the Project. These additives must not be used in concentrations in excess of those proposed in the application, nor in concentrations that would result in exceedance of any applicable water quality standard, Permit limitation, or other regulatory requirement.

TABLE 1. Approved Drilling Additives.

EZ-Mud® Gold	Aqua-Clear® PFD	N-Seal™	Casing Seal®
EZ-Seal®	Aquaguard®	PAC™-R	Core-Lube™
Holeplug® 3/8	Barad-399 Core	Poly-Bore™	Anhydrous Calcium Chloride
NXS-Lube	Barafloc®	Quik Mud® D-50	Peladow™ Calcium Chloride
Pel-Plug	Baro-Lube™ Gold Seal	Quik-Trol Gold LV	Con Det®
Pole-E-Flake	Bore-Grout	Sakrete Fence-Post Concrete	Aqua-Clear® AE
Portland Cement	Cal-Seal™ 60	Aquagel Gold Seal®	AQF-2 Foaming Agent
Quik-Gel®	Diamond Seal	Abantonite®	Quik-Foam®
Quik Mud® Gold	EZ-Mud® DP	Barad 381	-
Quik-Trol® Gold	EZ-Mud® Plus	Baroid® 41	-
Soda Ash	Sand & Gravel	Barotherm® Gold	-

The Permit requires the Permittee to walk the length of each surface discharge daily to determine the maximum flow distance and the location where it infiltrates completely into the subsurface, and to determine if there is any discharge to surface water. Monitoring data collected during the spring and summer of 2014 (in accordance with Temporary Discharge Permit TNEV2013113) indicate that sump overflow surface discharges typically flow less than 100 feet from the sump before infiltrating. When drilling fluid is no longer being pumped to a sump and the sump is not discharging to the surface, the sump is no longer considered active and monitoring of that sump may cease.

Drilling water is also used for dust suppression activities on roads and drill pads, employing BMPs to minimize runoff and prevent degradation of waters of the State. The dust suppression activities reduce the frequency and volume of surface discharges from the drill sumps. The Permittee may also employ a centrifuge system to reduce the frequency and volume of surface discharges. A centrifuge is used to separate the solids from the drilling fluid. The separated solids are accumulated on the drill pad within earthen berms, where they are allowed to dry prior to being placed in a drill sump as backfill. The fluid from the centrifuge may be contained within a metal or plastic tank, or in a water truck tank, where it can be recycled for drilling use, or it may be conveyed into a conventional drill sump as needed.

Analyses of groundwater samples obtained from hydrologic pump tests and from previous sump discharges at the Project indicate that the drilling water may exceed drinking water standards for arsenic, antimony, iron, and occasionally aluminum and manganese, due to naturally elevated background groundwater concentrations. However, no potential for groundwater degradation is anticipated, because the drilling water is allowed to infiltrate back into the subsurface close to its source, where it undergoes filtration and attenuation in the process.

The Permit prohibits discharge to surface water, except during a storm event that causes surface runoff and only if such a discharge cannot be reasonably prevented. Therefore, exceedance of surface water quality standards is also not anticipated; however, the Permit requires sampling and analysis of any discharge to surface water to allow comparison with applicable standards.

C. Proposed Determination

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

D. Receiving Water Characteristics

The Project is located within the upper Pine Creek, Horse Creek, Willow Creek, and Dry Creek watersheds, which are characterized by ephemeral drainages,

except for perennial flow in the upper reaches of Horse Creek and Willow Creek. The perennial flow becomes ephemeral downstream within the Project area. Regional maps show upper Pine Creek (also known as West Pine Creek), Horse Creek, Willow Creek, and Dry Creek all connecting to Pine Creek near the downgradient eastern boundary of the Project area, along with Denay Creek, which is located entirely outside of the Project area. In 2010, the U.S. Army Corps of Engineers (ACOE) determined that Horse Creek is not a water of the U.S., because the ephemeral downstream reach of the drainage empties into a flat area without a defined channel in the eastern portion of the Project area, and therefore, fails to connect to Pine Creek. Similarly, the Permittee contends that West Pine Creek, Willow Creek, and Dry Creek are also not waters of the U.S., because they also empty into similar flat areas with poorly defined channels before joining with Pine Creek. In the spring of 2014, the Permittee submitted jurisdictional proposals to the ACOE for West Pine Creek, Willow Creek, and Dry Creek, but ACOE had not yet issued determinations as of November 2014. Denay Creek, and Pine Creek below its confluence with Denay Creek, are designated waters of the U.S. Pine Creek is a tributary to the Humboldt River, which is also a water of the U.S. The Permit does not authorize discharge to waters of the U.S. under any circumstances.

The Division has determined that, based on the tributary rule, the beneficial uses and associated surface water quality standards designated for Denay Creek below Tonkin Reservoir (NAC 445A.1516) apply to Pine Creek, West Pine Creek, Horse Creek, Willow Creek, and Dry Creek all the way to their headwaters. The designated beneficial uses include watering of livestock, irrigation, aquatic life, recreation involving contact, recreation not involving contact, municipal or domestic supply, industrial supply, and wildlife. These surface waters are also subject to the quantitative water quality standards at NAC 445A.1236 and to the qualitative standards at NAC 445A.121.

Groundwater depth varies widely in the Project area from at or just below the ground surface (locally approximately 6,345 feet above mean sea level (AMSL)), to at least 1,070 feet below the ground surface (approximately 6,370 feet AMSL). In general, the groundwater gradient mimics the topography of the site, trending toward the southeast in the northern and western portions of the Project area, and bending toward the east in the southeastern portion of the Project area. Groundwater quality also varies within the Project area, but generally meets drinking water standards for Profile I parameters, except for commonly elevated natural background concentrations of arsenic (up to 0.127 milligrams per liter (mg/L)), antimony (up to 0.054 mg/L), and iron (up to 1.77 mg/L), and occasionally elevated aluminum and manganese. The Division has determined that groundwater degradation will not occur provided that the Permittee complies with Permit requirements, because the clarified drilling water is unlikely to exceed drinking water standards and the natural background groundwater concentrations for Profile I parameters.

E. Proposed Effluent Limitations, Schedule of Compliance, Monitoring, Special Conditions

The Permit includes maximum flow limits for surface discharges. The Permit prohibits any discharge to surface water or an otherwise dry stream channel that would cause an exceedance of an applicable surface water quality standard. However, the Permit prohibits all discharges to surface water (e.g., a creek, river, marsh, pond, lake, reservoir, etc.), except when it cannot be reasonably prevented during storm events that cause surface runoff. To protect groundwater, the Permit prohibits discharges that exceed both a drinking water standard and the natural background concentration for the same parameter in the groundwater under the discharge flow path. The Permit does not authorize discharge to waters of the U.S. Only approved chemicals may be used in the drilling fluid. The Permit includes monitoring and reporting requirements to determine and document compliance with the Permit limits.

Refer to Section I of the Permit for specific requirements.

F. Rationale for Permit Requirements

The Permittee must not discharge a pollutant that would result in the degradation of existing or potential underground sources of drinking water, or that would cause an exceedance of an applicable surface water quality standard or regulation. Because the Permit is not issued as a National Pollutant Discharge Elimination System (NPDES) permit, discharges to waters of the U.S. are prohibited.

The primary methods for ensuring compliance will be required routine monitoring and reporting, augmented by periodic Division site inspections. Specific requirements can be found in the Permit.

G. Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the discharge, subject to the conditions within the Permit, is being sent to the **Eureka Sentinel** newspaper 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. The public hearing must be conducted in accordance with Nevada Revised Statutes (NRS) Chapter 233B, unless waived by the applicant.

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. 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.

Prepared by: Thomas E. Gray
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