

# DRAFT

## FACT SHEET

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

**Permittee Name:** **Barrick Bald Mountain Mine**  
**Project Name:** **Casino/Winrock**  
**Permit Number:** **NEV0090020**  
**Review Type/Year/Revision:** **Renewal 2016, Fact Sheet Revision 00)**

### **A. Location and General Description**

**Location:** The Casino-Winrock Mine is located in northwestern White Pine County, approximately 10 miles south of the Ruby Marshes at the southern end of the Ruby Valley, 65 miles south-southeast of Elko and 60 miles northwest of Ely. The mine is located in Township 24 North (T24N), Range 57 East (R57E), Sections 2, 3, 10, 11, 12, 13, 14, 15 and T24N, R58E, Sections 8, 9, 10, 11, 14, 15, 16, 17 and 21, Mount Diablo Baseline and Meridian.

**General Description:** The mine site currently consists of five pits, two waste rock dumps, one leach pad, and two evapotranspiration basins (formerly the process and stormwater ponds). The mine encompasses approximately 850 acres, of these, about 224.5 acres have been disturbed. The mine site is located entirely on public lands administered by the Bureau of Land Management (BLM), Ely District, Egan Field Office. The mine is in post-closure; all support facilities have been removed from the site.

### **B. SYNOPSIS**

Water Pollution Control Permit (Permit) NEV0090020 was first issued to USMX, Inc. in August 1990. The Casino project was developed in 1990 with construction of a heap leach pad and process facilities. Active mining was completed at the Casino Mine in mid-1991. At that time, an expansion of the Casino leach pad began when development of the Winrock project was initiated. Active mining was completed at the Winrock project in mid-1992. USMX continued to operate the mine until August 1993 when Placer Dome - Bald Mountain Mine purchased the property. Leaching of the Casino/Winrock ore was completed in 1996. The site entered post-closure monitoring in May 2003. In June 2006, Placer Dome merged with Barrick Gold Corporation.

The Permit was first renewed in 1995 and expired in 1999. The Permit was last renewed in 1999 and expired 25 May 2004. This is a renewal of the post-closure monitoring Permit and shall remain in effect until 24 May 2019.

## Geology:

The Winrock property is located in the Maverick Springs Range at the northeastern edge of the Alligator Ridge mining district. Here, the strata-bound disseminated gold deposits are hosted by the Mississippian Chainman, and underlying Joana Formations. Leachable gold occurs in the oxidized portions of otherwise carbonaceous silty shales and other sediments of the Chainman and oxidized jasperoids of the Joana. A major northwest-trending pre-mineral shear zone localized the Deer Camp and Blowout ore bodies. Alteration and mineralization were controlled by primary lithology, proximity to hydrothermal activities, and both hypogene and supergene oxidization. The lowermost Devils Gate Limestone, intersected in only a few drill holes, is generally barren and unaltered.

The Pilot Formation is a uniformly black carbonaceous somewhat calcareous siltstone. Minor ore-grade material occurs in an argillized to silicified and oxidized zone just beneath Joana jasperoids. The lower Pilot-Devils Gate transition, where intersected, is barren.

The massive Joana Limestone nearly always occurs as an oxidized jasperoid breccia. Outcrops in the Blowout area contain massive barite veins. Some unreplaced limestone occurs in fringing waste areas.

Alteration within the Chainman Formation is the most diverse because of the variety of lithologic types. The predominant black carbonaceous silty shales may be argillized, bleached, or silicified, all in varying intensity. Unoxidized, preg robbing, black, carbonaceous, somewhat pyritic, ores are derived from this lithology.

The geology in the pit areas consists of Chainman Shale, Joanna Limestone and Pilot Shale Formations. The ore zone of the Casino Mine was hosted by the Pilot shale and the ore zone of the Winrock Mine was hosted by the shales and siltstones of the lower Chainman and top of the jasperoidal Joanna Limestone.

## Open Pits:

The mine site consists of five open pits: Keno, Blowout, Blowout Extension, Deer Camp and Hilltop. Pit areas and depths are listed in Table 1.

Table 1 - Casino-Winrock approximate open pit dimensions

Pit Identification	Size (acres)	Maximum Depth (feet)
Keno	14.2	200
Blowout	4	73
Blowout Extension	3.4	71
Deer Camp	5.6	110
Hilltop	3.5	61

The Keno Pit was associated with the original Casino Mine and the Blowout, Deer Camp and Hilltop pits were associated with the Winrock Mine.

Post-closure monitoring of the remaining pits consists of identifying pit surfaces as dry, damp, or wet (visible flow or ponding). If a groundwater source or persistent ponded water is present, the Permittee shall collect a representative sample and analyze for Nevada Division of Environmental Protection (NDEP) Profile III reference values. A field pH and Specific Conductance (SC) reported as Total Dissolved Solids (TDS), together with photo of the ponded area shall also be taken. All pits shall be evaluated for stability, safety, and access restrictions.

**WASTE DUMPS:**

There are two waste rock dumps on site, one associated with the Casino project and the other with the Winrock project. The Casino dump covers approximately 15.5 acres. The Winrock dump covers approximately 19.2 acres. Approximately 8 percent of the Winrock waste dump material is sulfides. Both waste rock dumps have been regraded, covered with growth media, and seeded.

In 1998, a site inspection revealed exposed sulfides on the Winrock waste dump. Shortly thereafter, the Permittee began an investigation utilizing sonic drilling and characterization of the Winrock waste dump area using acid-base accounting (ABA) and the meteoric water mobility procedure (MWMP). The investigation resulted in a set of goals and objectives, provided below, for the closure of the Winrock dump, which were completed in September 2001.

1. Relocated the sulfide material located on the Winrock dump's top surface into the Blowout pit;

2. Graded and covered the sulfide material--backfilled into the Blowout Pit--with native alluvial material at a depth of four feet;
3. Graded the Winrock dump's top surface to promote positive drainage;
4. Placed intermediate cover on the top and side slopes of the Winrock dump's upper lift;
5. Placed a minimum depth of one-foot of topsoil over the intermediate cover and other areas on the dump, which lacked growth medium or showed evidence of sulfides on the surface;
6. Reclaimed the access road leading to the Winrock dump;
7. Contoured and reclaimed exploration roads and drill pads surrounding the Winrock pit area; and
8. Ripped--on contour--the top and side slopes of the Winrock dump.

The Permittee is required to inspect the waste rock dumps (annually) for mass and surface stability. Inspect for seepage and identify surfaces as dry, damp, or wet (visible flow or ponding). If any seepage is emanating from any portion of a waste rock dump, the Permittee shall collect a representative sample and analyze for NDEP Profile I reference values. 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 semi-annual monitoring report.

#### HEAP LEACH PADS:

The heap leach pad is approximately 16 acres in size. The pad was constructed in two phases: Casino Project and Winrock Project. The primary liner was constructed of 60-mil High Density Polyethylene (HDPE) overlaying a 12 inch compacted clay sub-base. (No compaction specifications or transmissivity values are available.) The pad was divided into cells of 300 feet (ft) x 600 ft. and separated by berms with perforated drain pipes. Leak detection port MW-1 is located at the edge of the pad near the solution conveyance channel. Two additional leak detection monitoring ports are located down gradient of the pad (MW-2) and channel (MW-3). The heap surface has been regraded, covered with growth media to a depth of approximately 18 inches and seeded.

In March 2005, monitoring of the leak detection ports MW-1, MW-2, and MW-3 was discontinued pursuant to Permittee request and subsequent Division approval. Remaining monitoring is in accordance with Part I.D of the Permit.

Approximately 452,000 cubic yards (cy) of spent ore was removed from the heap leach pad in three separate events beginning in 1999. This material was utilized as overliner protection for the Mooney Basin leach pad expansions and did not result in a decrease in the overall pad footprint, only the total elevation.

#### PROCESS PONDS:

There are two converted ponds at the site, formerly the pregnant (CWCP-1) and storm water (CWCP-2) ponds. The primary liner for both ponds consists of 60-mil HDPE overlaying a compacted soil layer (No compaction specifications or transmissivity values are available). Only the pregnant pond was constructed with a leak detection port (MW-4). Monitoring of leak detection port MW-4 was also discontinued in March 2005.

The ponds have been modified for incorporation into the heap leach draindown solution infiltration system. The modifications consisted of re-lining the ponds, including the ditches leading from the heap to the ponds and between the ponds, with half-inch thick conveyor belting, to protect the liner from punctures during back-filling operations. Both ponds were backfilled with spent leach material, the pregnant pond with approximately 69,300 cubic feet (cf) and the stormwater pond with approximately 183,300 cf. After backfilling was completed, the ponds were then covered with a nonwoven geofabric overlain by a minimum of 18-inches of growth medium. The final capacities of the pregnant and stormwater ponds are 29,700 cf and 78,590 cf, respectfully or 810,057 gallons combined. In this design the ponds are used as storage/surge reservoirs. Solution which fills the storage capacity of the pregnant pond overflows to the stormwater pond where it is stored. Any solution which fills the storage capacity of the stormwater pond overflows to a 5,000 gallon dosing siphon tank which “doses” the solution out to an infiltration field.

The infiltration field is approximately 2,156 square feet in size and consists of 720 linear feet of 3-foot wide louvered infiltrators which are sized for the 100-year, 24-hour storm event. To date, no solution has discharged from the former storm water pond to the dosing tank or the infiltration field.

Tables 2 and 3 below provide empirical data for the CWCP-1 and CWCP-2, respectively, based on the averages of 65 sampling events (March 1999 through July 2015), and includes only those parameters, with the exception of pH, that may be considered elevated or of interest with respect to NDEP Profile I reference values.

Table 2 – Process Pond Constituents – CWCP-1

Constituent	NDEP Reference Values (mg/l)	Average Concentration & (Range) (mg/L)	Trend
Arsenic	0.005	0.090 (0.030 – 0.194)	Increasing
Nitrate + Nitrite, Total (as N)	10	167 (106 - 370)	Stable
pH (in Standard Units)	6.5 – 8.5	7.57 (6.0 – 8.4)	Decreasing
Selenium	0.05	1.11 (0.85 – 1.56)	Increasing
Sulfate	500	1400 (1150 - 1710)	Increasing
Thallium	0.002	0.003 (0.005 – 0.008)	Stable
Total Dissolved Solids	1000	3270 (2300 - 3790)	Increasing
WAD Cyanide	0.2	0.093 (0.005 – 0.462)	Decreasing

Table 2 – Stormwater Pond Constituents - CWCP-2

Constituent	NDEP Reference Values (mg/l)	Average Concentration & (Range) (mg/L)	Trend
Arsenic	0.005	0.081 (0.041 – 0.138)	Increasing
Nitrate + Nitrite, Total (as N)	10	68.4 (25.8 - 123)	Decreasing
pH (in Standard Units)	6.5 – 8.5	7.4 (6.1 – 8.2)	Decreasing
Selenium	0.05	0.778 (0.32 – 1.45)	Decreasing
Sulfate	500	1750 (1540 - 2060)	Increasing
Thallium	0.002	0.007 (0.004 – 0.015)	Decreasing
Total Dissolved Solids	1000	3300 (2530 - 3600)	Increasing

WAD Cyanide	0.2	0.011 (0.0025(ND) – 0.080)	Decreasing
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Monitoring is in accordance to Part I.D of the Permit.

Since the piezometer in CWCP-1 has never indicated a solution outflow to CWCP-2, in all likelihood, the chemistry represented by CWCP-2 may be the result of solution remaining in the pond at the time the backfilling of the pond commenced in 1998. Spent leach ore was utilized as backfill material.

**C. Receiving Water Characteristics**

The facility is located at an elevation of approximately 6,470 ft. above mean sea level (AMSL). The average annual precipitation at the site is approximately 13.13 inches per year. The mean annual potential evaporation is 47.22 inches. There are no springs, perennial streams, or lakes are located within a 1-mile radius of the site. The nearest surface water is the Ruby Marshes, located approximately 10 miles to the north.

During production well drilling, ground water was encountered at 720 ft. below ground surface (bgs). The static water level subsequently rose to 560 ft. bgs, indicating confined ground water conditions. Water quality data collected from the mine site water supply well indicates that only iron exceeds the NDEP Profile I reference values.

Two condemnation holes were drilled in the area of the leach pad, one to 535 ft. and the other to 555 ft. and no groundwater was encountered in either.

**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 Ely Times** 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 the 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 proposed Permit.

**F. PROPOSED LIMITATIONS, SCHEDULE OF COMPLIANCE, MONITORING, SPECIAL CONDITIONS**

See Section I of the Permit.

**G. RATIONALE FOR PERMIT REQUIREMENTS**

The site has been in post-closure monitoring since May 2003. The former pregnant pond and stormwater pond have been converted to in-series evapotranspiration basins and the Permit allows for a controlled discharge through a dosing tank system and engineered infiltration field in accordance with Division approved engineering designs submitted by the Permittee which are contained within the approved closure plan. Since inception, there has been no overflow from the process pond to the stormwater pond, and hence no recorded discharge to the infiltration field. None is expected to occur in the long-term.

The primary means of identifying escaping solution, from areas other than the approved discharge location, will be placed on routine inspection of the facilities as required by the Permit.

Specific monitoring requirements can be found in the 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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Revision 00: Permit Renewal