#### **FACT SHEET**

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

Permittee Name: KG Mining (Bald Mountain) Inc.

Project Name: South Operations Area-Vantage Complex Project

Permit Number: **NEV2017111** 

Review Type/Year/Revision: Renewal 2025, Fact Sheet Revision 00

## A. <u>Location and General Description</u>

**Location:** The facility is located entirely on public lands administered by the United States Department of the Interior, Bureau of Land Management's (BLM), Ely District Office, Bristlecone Field Office in White Pine County, within Sections 6, 19, and 30, Township 21 North (T21N), Range 58 East (R58E); Sections 1, 2, 10-15, and 22-27, T21N, R57E; Sections 2, 11, 14, 15, 22-27, and 34-36, T22N, R57E; Sections 19, 30, and 31, T22N, R58E; Sections 7, 18, and 19, T23N, R58E; and Sections 13, 24-26, and 35, T23N, R57E, Mount Diablo Baseline and Meridian, approximately 70 road miles northwest of the town of Ely, Nevada.

General Description: The South Operations Area - Vantage Complex Project (Project) facilities consist of a surface open pit mine, waste rock disposal facilities, a single heap leach pad (HLP), a carbon-in-column (CIC) process plant for processing pregnant heap leach solution, a solution tank, a pregnant pond, storm/event pond, upgradient and downgradient groundwater monitoring wells, water supply wells, and ancillary facilities for administrative, operational, and maintenance support. As proposed, the project has a life of more than five years and has been permitted at an ore production rate of 18,000,000 tons per year with a disturbance footprint of 1,740 acres.

All facilities are required to be designed, constructed, operated, and closed in such a manner as to prevent discharge or release of process fluids in excess of those standards established in regulation, except for meteorological events which exceed the design storm event.

### B. Synopsis

#### General:

The Vantage Complex Project is part of the South Operations Area, which also includes the Yankee Mine Project (WPCP NEV2020103). The Vantage Complex Project consists of the expansion of three existing and currently closed facilities including Vantage area, the Vantage Pit, Saddle Pit, and Luxe Pit, (formerly known collectively as Alligator Ridge), and a new facility, the Gator area on the east flank of Alligator Ridge mountain approximately 1.5 miles due east of the Vantage HLP.

## **History:**

The Alligator Ridge Mine was founded on a Grubstake Agreement dated 1 January 1976, between Lyle F. Campbell, Amselco Minerals, Inc., and Chevron Oil Company with the initial claim located by Campbell on 13 July 1976. Subsequently, an agreement dated 15 December 1977, was entered into by and between Amselco Minerals, Inc., and Occidental Minerals Corporation, a subsidiary of Occidental Petroleum Company.

In June 1981, a world-wide fall in copper prices brought about the acquisition of Kennecott Corporation by Standard Oil of Ohio (SOHIO). In June 1987, British Petroleum Company (BP) acquired full ownership of SOHO and merged its other interests in North America with those of SOHIO to form BP America. In September 1987, BP America announced the formation of BP Minerals America, combining the assets of SOHIO's Kennecott Corporation, headquartered in Salt Lake City, with BP North America's Denver-based Amselco Minerals Inc. In 1989 Rio Tinto Zinc (RTZ) Corporation purchased all mineral assets worldwide from BP Minerals America. The name BP Minerals America was subsequently changed to Kennecott Corporation. On or about this time, Kennecott Corporation began production at Alligator Ridge.

In December of 1982, NERCO Minerals, Inc. agreed to buy Occidental Petroleum's Occidental Minerals Corporation, a company which held half interest in the Alligator Ridge Gold Mine.

After a series of assignments and leases, on 30 May 1990, USMX, Inc., acquired all right, title, and interest in the Alligator Ridge Mine from Kennecott Minerals Corporation. USMX, Inc., also acquired the remaining interest in the mine from NERCO Minerals, Inc., subject to a retained royalty. USMX operated the Alligator Ridge mine from 1991.

The first Water Pollution Control Permit for the Alligator Ridge Project was issued to USMX in August 1990. The Alligator Ridge Project was operated under Water Pollution Control Permit (WPCP) NEV0080022 as a milling operation with associated tailings impoundment and heap leach facility until cessation in 1996.

The first Water Pollution Control Permit for the Yankee Mine Project was issued to Kennecott Minerals Corporation in 1989. That same year, the mine was placed into production by Kennecott and USMX. Ore from this phase of mining was hauled to the Alligator Ridge Mine heap facility for beneficiation. In 1990, USMX purchased total ownership of the operation. USMX continued to operate the Yankee mine until August 1993 when Placer Dome - Bald Mountain Mine purchased the Alligator Ridge Project, Yankee Project, and several other holdings in the area. The Yankee Mine was operated under WPCP NEV0089008 as a mining and heap leaching operation until June 2002 when its physical status was changed to Post-Closure Monitoring in Division Records. In April of 2020, a new application was submitted for the Yankee Mine area, encompassing many of the components previously operated under WPCP NEV0089008. This new permit is the South Operations Area – Yankee Mine Project, operated under WPCP NEV2020103.

The WPCP for the Alligator Ridge Project was renewed on 25 May 1999. The Project was placed into Post-Closure Monitoring status in May 2003. The Permit expired on January 26, 2005. WPCP NEV0080022 for the Alligator Ridge Mine was officially terminated on 30 May 2006 when the Permit status was changed to Permanently Closed and Permit Terminated in Division records.

In 2006, Barrick Gold Corporation acquired holdings from Placer Dome U.S. which resulted in ownership and operations conducted by Barrick, Bald Mountain Mine, a wholly owned subsidiary of Barrick Gold Corporation. Yankee, Alligator Ridge, Little Bald Mountain, Mooney, Casino/Winrock, Bald Mountain areas were included in the sale.

Kinross Gold acquired the holdings through a Barrick asset sale which closed on 11 January 2016. Kinross Gold purchased 100 percent (%) of the mine which includes a large land package divided into three zones. The mine is owned and operated by KG Mining (Bald Mountain), Inc., a Kinross company, the Permittee.

Previous mine development consisted of a conventional drill and blast method for mining ore and waste rock. Several benched pits and associated waste rock dumps were created during the process. Approximately 954,100 tons of carbonaceous ore were mined and stockpiled by previous operators. The first gold was poured in November of 1980.

A conventional mill was constructed at the mine to process carbonaceous ore; it was also capable of processing oxide ore. A tailings dam and impoundment were constructed in conjunction with the mill in 1987. Approximately 500,000 tons of carbonaceous ore were milled and deposited in the tailings impoundment. The balance of the carbonaceous material is situated within the heaps.

Historical facilities at the Vantage Complex Project site operated under WPCP NEV0080022 have been fully reclaimed with stands of mature vegetation. Existing facilities at the site include reclaimed HLP A-L and HLP MNO, heap drain down pipeline from the closed HLPs, and a dosing system reporting to two evapotranspiration (ET) cells. Overflow from the ET cells was conveyed in a pipeline to the reclaimed Alligator Ridge tails impoundment offsite of the Project.

#### Geology:

The Project lies in the Basin and Range physiographic province in eastern Nevada, within the eastern Great Basin. The area experienced deposition of thick sequences of miogeosynclinal sediments from the Precambrian through the Triassic Period. These sequences consist of clastic and carbonate facies up to 7.5 miles thick. Three major thrust belts are located within the region (Roberts Mountains Thrust, Central Nevada Thrust Belt and the Sevier Thrust belt), which propagated from west to east over time.

The Project site lies on the east and west side of the southern end of Alligator Ridge, south of Mooney Basin, and east of Buck Mountain. Rock formations in the area consist of

Mississippian and Devonian clastic and carbonate facies miogeoclinal deposits, and Tertiary volcanics comprised of intermediate flows and tuffs and felsic tuffs.

The Bald Mountain, Buck Mountain and Alligator Ridge areas are tilted allowing a progression of younger rocks to be exposed at the surface from north to south. The area of historical mining at the immediate project site has not been recently mapped due to existing disturbance. However, the Chainman Shale underlies most alluvium and undocumented fill at the site. Biotite lithic tuff was observed underlying fill at the south-central area of the HLP. The hillside at the southern margin of the HLP and pond area consists of felsic tuff with basaltic-andesite float on the surface.

The area experienced low angle thrust faulting which maintained the younger-over-older relative age stratigraphy and folding. These faults are described as "attenuation faults", which are "zones of detachment between rock of contrasting competency." The origin of these structures is uncertain, but the relative age is older than Eocene, as determined by the Law of Superposition. These thrusts are generally striking northwest and north. East of the Project site and at the Project site the "attenuation faults" have left several windows and klippes, which are commonly bisected with an anticline or syncline axis.

Local normal faulting is consistent with regional crustal extension, though, some local normal faulting exhibits a west to northwest strike. These faults are believed to be reactivated transverse faults, which existed prior to regional crustal extension. Normal faults in the area are both high angle to sub-vertical and listric (dip shallows with depth).

Three faults have been previously mapped within the limits of the HLP. Two of the faults at the west-northwest margin of the HLP are likely one primary fault with a splay. The primary fault has a strike of 220° and truncates approximately 550 feet into the HLP. The splay comes off the primary fault approximately 1,400 feet southwest of the HLP with a strike of 200°, enters the HLP's limit and follows the HLP northwest margin up to 350 feet. The splay was not mapped into the area previously disturbed by historical mining activities. The third fault is located at the south end of the HLP. There is no indication of the type of fault. This approximated fault is not mapped 1,000 feet into the HLP limits at the historical mining previously disturbed boundary.

According to the United States Geological Survey (USGS), the faults described above are not active Quaternary faults, and are not considered a source of a magnitude 6 or greater seismic event within recent geologic history.

Dominant folding in the area trends to the north, with a second, shorter set trending northwest. Dipping along the fold limbs is gentle to moderate, with the exception being the anticline that follows Alligator Ridge. The east side of Alligator Ridge has relatively steeper dips compared with other areas and some vertical and overturned beds.

The valleys, pediments and terraces are generally comprised of Pleistocene alluvium. A veneer of Holocene alluvium is present in ephemeral streams overlying the Pleistocene sediments.

## Mining:

#### <u>Pits</u>

Conventional open pit mining methods (i.e., drill, blast, truck and shovel/loader) is used to excavate ore and waste rock from the open pits. The Project mining began during 2018, and the expected mine life is greater than five years. Mining was temporarily suspended in 2024. Existing reclaimed pits will be modified, and new open pits will be developed to provide ore for operations. Pits associated with the Project include Luxe, Gator North, Gator South, Saddle, and Vantage. Gator North and Gator South pit were originally proposed as a single pit, but were mined as two smaller, adjacent pits. The Saddle pit is not its own feature, but a specified area in the west of the Vantage pit. However, internal engineering and reporting from KG-BM refers to the area as the Saddle pit, rather than the Vantage pit.

The estimated total leach material production over the life of the mine will be approximately 70 million tons (MT). Trucks will be used to haul run-of-mine (ROM) leach material to the HLP and waste rock to the rock disposal areas (RDAs). Low-grade leach material may be temporarily stored on selected portions of the RDAs for later transport and processing.

Final bench height will be determined by mining requirements and/or rock geotechnical properties. A catch bench on the rock slope to "catch" rocks so that they do not continue unhindered to the toe of the slope or away from the base of the rock cut will be incorporated into the final pit design. Catch bench intervals generally will be one to three bench heights. Slope angles for the pit expansions will range from approximately 30 to 55 degrees, depending on geotechnical conditions. The Permittee will monitor pit wall stability throughout the active life of each open pit. Monitoring generally will include periodic surveying of pit wall surfaces to identify movement or deflection relative to benchmarks set outside the geotechnical influence of the pit. Open pit design will be refined as new information is collected to ensure safe operating conditions.

Based on extensive area drilling information, the Permittee does not anticipate intercepting the groundwater table while mining in the pits located within the Project boundary, and no dewatering activities are planned. One potential exception is that perched water may be encountered at the southeastern portion of the Vantage Pit. The anticipated flows are predicted to be low and will likely evaporate rather than accumulate. As of the 2025 renewal, no groundwater had been encountered in the Vantage pit.

Measurements and simulations indicate that all pits (Vantage, Saddle, Gator North, Gator South, and Luxe) will be dry or mined above the groundwater level with the possible exception of Vantage Pit, which may have an area of perched water with low flows. If isolated, perched, saturated zones are encountered in pits, collection ditches and sumps will be installed as necessary to maintain safe operating conditions within the pit.

**Table 1.** Pits and Their Relative Depths to Groundwater (elevations are feet above mean sea level)

Pit	Pit Bottom Elevation (as of 2025 Renewal)	Simulated Water Elevation	Depth to Water (feet)
Luxe	6,780	5,918	862
Saddle	6,600	6,010	590
Vantage	6,135	5,950	185
Gator North	6,825	6,000	825
Gator South	6,650	6,000	650

Planned ore handling for the pits is described as follows: Luxe – Leach material will be hauled to the HLP, and waste rock will be hauled to the Luxe RDA. Gator –Leach material will be hauled to the HLP and waste rock will be hauled to the Gator North or Gator South RDAs. Vantage – The pit expansion will merge and expand the Vantage Pit and Saddle Pit. The Vantage Pit will remove reclaimed pit backfill areas as well as portions of the reclaimed RDAs. The Vantage Pit will remove the majority of existing and reclaimed HLP A-L. Spent ore from HLP A-L will be encapsulated under the composite liner system of the new HLP and/or placed in the Segregated Ore Area on the new HLP. Waste rock will be hauled to the Luxe RDA or to the Vantage RDA.

## Rock Disposal Areas (RDAs)

There are Four RDAs on site: Luxe, Vantage, Gator North, and Gator South.

RDAs are constructed in lifts by end dumping from haul trucks. Bench setbacks and associated bench heights will be sufficient to approximate a post-mining reclaimed configuration of no steeper than 2.5 horizontal to 1 vertical (2.5H:1V) slopes while ensuring operational slope stability and long-term geomorphic stability. Benches generally will be completed by starting at the base of the slope and working upward. This method of benching from the bottom up and creating slopes that generally conform to ultimate regraded slope will reduce earthwork volumes required to complete final reclamation. Additionally, the steeper inter-bench slope angle will minimize water infiltration into the RDAs, increase run-off, and limit the potential to generate acid rock drainage by minimizing water contact with any incidental potentially acid generating (PAG) material. In general, RDAs will be developed and constructed with sufficient bench setbacks to facilitate reclamation at closure. The final slope configuration may vary (2.5H:1V or shallower) based on underlying topography and waste rock characteristics, while leaving catch benches to aid in reducing surface water flow and velocities.

As stated in the June 2023 KG-BM Waste Rock Management Plan (WRMP), the environmental risk of the RDAs was evaluated by drilling and sampling waste rock from historic RDAs. In a study conducted by the Permittee in 2010, nine RDAs were drilled and sampled to evaluate and document interstitial water quality, water movement, and chemical fate and transport. The results from the study indicate that water content of the waste rock was quite low, averaging only 6%, with 90% of samples falling in a range from 2% to 12%

water content. Additionally, the overall high suction levels observed in samples indicates little water movement within the RDAs. The potential for metals to be mobilized in the Vantage RDA is higher than other RDAs due to pyrite oxidation, although results from the drilling program suggest that metals have not moved from the Vantage waste rock since the middle 1980's when the site was last active.

The results of the drilling and sampling program provided strong supporting evidence towards the effectiveness of the existing WRMP in precluding water quality impacts due to migration of acidity or metals. The proposed approach to waste rock handling, facility siting, construction, and reclamation is supported by the research on historic dumps that were managed similar to the WRMP.

The implementation of mitigation measures based on quarterly sample results would be followed to minimize the potential adverse impacts to surface and/or downgradient water quality associated with backfill. Based on the quarterly sample results if the total amount of waste rock on an annual basis is either:

#### A. Greater than 20% PAG; or

- B. Between 10-20% PAG with a net neutralizing potential (NNP) value of less than 200 kilograms per ton (kg/t) calcium carbonate (CaCO<sub>3</sub>). After this categorization, any one or a combination of the following measures will be applied:
  - a. Change routing of future waste rock to reduce the percentage of PAG material in the facility.
  - b. Place PAG in the interior of facility (e.g. minimum of 20 feet within the perimeter of the RDA or backfilled area). The minimum 20-foot-thick perimeter shell would consist of oxidized (non-PAG) material.
  - c. Co-mingle PAG with non-PAG, with an NNP value greater than 200 kg/t.
  - d. Enhance cover design, subject to the BLM and NDEP approval, to reduce net infiltration.
  - e. Re-design RDA, subject to approval by the BLM and NDEP, to redirect surface runoff, manage seepage, re-slope facility, or locally enhance cover.

In 2020, a waste rock sample of Pilot Shale from the Vantage pit tested as PAG material and was encapsulated in the center of the Vantage RDA. No other PAG from Vantage has been encountered since that time.

The Gator Pit is modeled to contain greater than 20% PAG and therefore the Permittee plans to install an engineered cover to the Gator North and Gator South RDAs once mining has ended. The Permittee plans to engineer the cover design and submit the design to the Division for approval prior to installation.

An EDC to establish a final cover design for the Gator RDAs was received by the Division on 13 July 2020. The design is for a two-layer system consisting of 12 inches of alluvium over burden under a top cover of 6 inches of salvaged growth media. The design

requirement was added to the Permit as Part I.G.10 in Permit Limitations. The EDC was approved by the Division with the issuance of Permit Revision 01 on 23 December 2020.

# Heap Leach Pad

The VCP-HLP was constructed in one phase with two cells and covers an area of approximately 8.4 million square feet. Ore is authorized to be stacked on the HLP to a maximum height of 300 feet. Based on a low-grade pit-run material with a tonnage factor of 18.3 cubic feet per ton (109 pounds per cubic foot), the HLP will accommodate approximately 70 million tons of ROM ore at a height of 300 feet.

The HLP was constructed with a composite liner system. The composite liner system consists of an 80-mil high density polyethylene (HDPE) geomembrane placed above a prepared 12-inch-thick compacted soil layer with a maximum hydraulic conductivity of 1 x 10<sup>-6</sup> centimeters per second (cm/s) (prepared sub-base) or a geosynthetic clay layer (GCL).

A dilute cyanide solution is applied to the heap via drip emitters at a maximum rate of 10,000 gallons per minute (gpm) at no more than 0.005 gallons per minute per square foot (gpm/sf). The design return rate of leach solution is 8,100 gpm accounting for absorption and evaporation. The maximum area under leach for the HLP is 4.0 million square feet.

The HLP is graded to collect pregnant solution within an underdrain piping network integral to the overliner system. The overliner system protects the liner from damage and reduces hydraulic head on the liner system. Leachate is collected in the underdrain system consisting of perforated and non-perforated 4- and 6-inch diameter corrugated exterior polyethylene pipe (CPEP) piping placed on 30-foot centers across the HLP. The piping system will be placed in a herringbone pattern leading to perforated 12-inch and 24-inch diameter CPEP headers at the topographic lows. The 6-inch diameter underdrain pipes will discharge into 24-inch CPEP located along the toe of the north and south perimeter berms and along portions of the downgradient edge of the HLP. Solution collected in the underdrain system will discharge through a manifold and pipe that penetrate a ditch dam ultimately flowing into the 30-inch diameter carbon steel main solution transfer pipe. This pipe discharges into the 118,000-gallon Solution Tank and pond system.

From the Solution Tank, pregnant solution is pumped directly to the CIC plant. In the event solution flows are greater than can be handled by the Solution Tank, solution overflows the tank and discharges to the Pregnant Pond. Under upset conditions or during routine maintenance of the Solution Tank and pumping system, pregnant solution can be diverted to discharge directly into the Pregnant Pond. This arrangement allows for operational flexibility and maintenance without a significant disruption to leaching operations. All pipeline channels are HDPE-lined to provide secondary containment for the solution piping.

In May of 2022, the Permittee submitted an EDC to construct gravity solution infiltration wells on the Vantage Heap Leach Pad. Infiltration wells are spaced between 10 to 20 feet

on center, with a minimum setback of 25 feet from the crest of any significant slope. No two adjacent gravity wells within 20 feet of each other shall receive solution simultaneously, and solution shall not be added to infiltration wells in areas under leach. The EDC was approved by the Division in June 2022 and work completed in November of 2022. As of the 2025 renewal, 20 gravity injection wells were drilled on the Vantage HLP.

### **HLP Seismic Stability**

Both static and pseudostatic loadings were evaluated for critical cross-sections through the HLP area. Cross-sections along the southern (down gradient), northern (up gradient), and eastern (orthogonal to base grades) slopes were analyzed. The section along the northern edge of the facility was deemed the most critical since base grades slope toward the facility exterior. In addition, cross-sections through the Segregated Ore Area, along the western side of the HLP, the ponds, and the haul road adjacent to the pond area were analyzed.

The southern edge of the HLP was modeled to include a 300-foot wide zone with a 2.0% maximum gradient that transitions to a 20% maximum gradient to the east (upgradient). The maximum gradient towards the perimeter berm within 200 feet of the perimeter berm is 1.0%.

The stability of the heap was analyzed for intermediate and ultimate facility geometries. The facility geometry considered 30-foot lifts placed by end dumping at the angle of repose, approximately 1.3H:1V, with subsequent lifts setback to maintain an overall slope of 3H:1V. The ultimate geometry for HLP was modeled to a maximum design height of 300 feet and an overall slope of 3H:1V. The phreatic surface within the heap is modeled as essentially fully drained.

The stability analysis results indicate that suitable factors of safety are achieved for all cases considered with a minimum static factor of safety of 1.3 and a minimum pseudostatic factor of safety of 1.08 occurring on the northern (up gradient) HLP section. Since the heap leach material will be placed at the angle of repose, minor surface raveling and sloughing of the slopes should be expected. A minimum setback of 30 feet around the facility perimeter between the toe of the ore and the toe of the perimeter berm is recommended to contain sloughing and raveling material. To provide proper buttressing, ore should be placed to a minimum of 50 feet thick between the spent ore placed within the Segregated Ore Area and the remainder of the heap to achieve minimum required factors of safety.

#### Process Ponds

The Project process pond system consists of two ponds, including the Pregnant Pond and the Storm/Event Pond. Both ponds are double-lined and designed with an 80-mil HDPE primary liner and a 60-mil HDPE secondary liner placed over a combination of prepared native soil and engineered compacted fill. A HDPE geonet is placed between the primary and secondary liners for leak collection and recovery of solution via gravity to the leak detection sumps. Each sump has a capacity of 1,832 gallons. The pond bottoms are graded to the sumps which are filled with clean granular material. The sumps are monitored and

can be evacuated using a submersible pump in the 12-inch diameter HDPE riser pipe that extends into the sump and daylights at the pond crest. The leak detection risers are sealed at the top with removable caps.

The solution tank shelf is located within the Pregnant Pond and has an independent lining system consisting of two HDPE liners with an intermediate geonet drainage layer similar to the Pregnant Pond. The solution tank shelf has an independent leak detection sump with a 224 gallon capacity. This sump is similar to that of the Pregnant Pond, and is also monitored and evacuated via a pump in the 12 inch diameter HDPE riser that extends into the sump and daylights at the pond crest. The Pregnant Pond is connected to the Storm/Event Pond with a spillway.

The two ponds provide sufficient combined capacity to store 24 hours of drain down in case of power loss, plus operational inventory, plus runoff from a 25-year, 24-hour storm event plus direct precipitation to the pond surfaces and withstand the runoff resulting from a 100-year, 24-hour storm event without overtopping. The ponds are intended to work as a system and the maximum design operational inventory can be split between the ponds to provide operational flexibility. The Pregnant Pond has an operational capacity of 16,347,000 gallons (50.17 acre- feet) at the two-foot freeboard, and a 18,390,400 gallon (56.44 acre-feet) capacity at the crest. The Storm/Event Pond has an operational capacity of 9,567,500 gallons (29.36 acre-feet) at the two-foot freeboard, and a 10,924,100 gallon (33.53 acre-feet) capacity at the crest.

### Legacy Closed HLPs

Two previously reclaimed heap leach pads, HLP A-L and HLP MNO, were removed for the expansion of the Vantage pit and the construction of the new VCP-HLP.

Results of analytical testing of the spent ore including Meteoric Water Mobility Procedure (MWMP), American Society for Testing and Materials Method E2242, Profile I and Acid Base Accounting (ABA) show that the spent ore contains constituents in excess of Profile I reference values. Results of testing are presented later in the section *Characterization of Spent Ore*.

Spent ore removed from HLP A-L was placed on the new HLP in the north east corner of the new HLP designated as the Segregated Ore Area. The Segregated Ore Area is approximately 1.8 million square feet, separated from adjacent fresh ore by an internal containment berm. A smaller portion of the spent ore from HLP A-L was placed as engineered fill in the deeper fills for the construction of the new HLP and covered with common fill and the new composite lining system. The existing lining system from HLP A-L was removed and placed within the Segregated Ore Area on the HLP. The spent ore from HLP MNO was used as engineered fill in the deeper fills for the construction of the HLP and covered with common fill and the new composite lining system. Spent ore that is placed and compacted in the deeper fills for the HLP will be contained by essentially using the new lining system as an impermeable cap. In addition, the depth to groundwater is approximately 500 feet below the ground surface.

The existing Evapotranspiration Cell located at the southeast side of HLP MNO was buried with common fill and the new HLP composite liner system. The existing drain down sump at HLP A-L was removed and disposed of. The pipeline that connects the HLP A-L drain down sump to the HLP MNO Evapotranspiration Pond, plus the pipeline from the Evapotranspiration Pond to the existing reclaimed tailings storage facility located south the new HLP was abandoned through a combination of removal of the pipelines and plugging with concrete and capping where appropriate.

## Characterization of Spent Ore

Expansion of the existing Vantage, Luxe and Saddle pits and development of the HLP impacted two closed HLPs including HLP A-L and HLP MNO. In accordance with the Guidance Document Alternate Use of Spent Ore Outside of Containment (NDEP-BMRR, Undated), the spent ore has been characterized for its potential to release contaminants. Testing included MWMP, ASTM E2242, Profile I, and ABA per the 2015 Update Nevada Modified Sobek Procedure.

The MWMP-Profile I characterization results on three ore samples collected on 20 March 2017 from HLP A-L indicate eight Profile I constituents at concentrations in excess of Profile I reference values. All of the samples were high in the following: total dissolved solids (TDS) (1300 – 2700 milligrams per liter (mg/L)), sulfate (850 – 2000 mg/L), antimony (0.15 – 0.17 mg/L), arsenic (0.19 – 0.77 mg/L), and thallium (0.0024 – 0.0085 mg/L). Additionally, total nitrogen was in excess of Profile I reference values in two samples at concentrations of 12 mg/L and 15 mg/L. Results for sample OVHSLS16-Low PR showed two further constituents at concentrations exceeding Profile I reference values: Nitrate + Nitrite (as nitrogen (N)) (1100 mg/L) and Cadmium (0.0025 mg/L). Manganese concentrations in sample OVHSLS16-High PR also exceeded Profile I reference values at 0.15 mg/L. Based on these results the spent ore handling will be conducted in a manner that prevents meteoric water from passing through the spent ore and contaminating waters of the State. The acid neutralization potential/acid generation potential (ANP/AGP) ratio is in excess of 1.2:1 (5.43:1 – 11.9:1) which is indicative of non-acid generating material.

MWMP Profile I and ABA analyses were performed on three ore samples collected on 20 March 2017 from HLP MNO. Material for samples VS16-182\_183\_185, VS16-176\_177\_184, and VS16-180\_181 were taken at depths of 10 – 30 feet, 30 – 50 feet, and below 50 feet respectively. The MWMP-Profile I characterization results indicates seven Profile I constituents at concentrations in excess of Profile I reference values in all of the samples: total nitrogen (13 – 26 mg/L), total dissolved solids (TDS) (2000 – 2900 mg/L), sulfate (140 – 2000 mg/L), nitrate + nitrite (11 – 23 mg/L), antimony (0.058 – 0.43 mg/L), arsenic (0.044 – 0.36 mg/L), and thallium (0.0032 – 0.015 mg/L). An additional two constituents were in excess of Profile I reference values in samples VS16-176\_177\_184 and VS16-180\_181: fluoride (6.9 – 7.9 mg/L) and aluminum (0.24 – 1.8 mg/L). Results for sample VS16-182\_183\_185 showed three further constituents at concentrations exceeding Profile I reference values: cadmium (0.0068 mg/L), manganese (0.92 mg/L), and selenium (0.066 mg/L). Based on these results the spent ore handling will be

conducted in a manner that prevents meteoric water from passing through the spent ore and contaminating waters of the State. The ANP/AGP ratio for samples VS16-176\_177\_184 and VS16-180\_181 are in excess of 1.2:1 (1.8:1 – 3.68:1) which is indicative of non-acid generating material. The ANP/AGP ratio for sample VS16-182\_183\_185 is 0.43:1 which indicates potentially acid generating material.

## **Process Building**

Under normal operating conditions, the pregnant solution reports to the 118,000 gallon solution tank and is pumped to the CIC plant. Alternatively, in the case of upset or maintenance, the pregnant solution can be diverted to the Pregnant Pond and later pumped to the plant. The pregnant solution flows by gravity through three trains of five carbon columns countercurrent to the activated carbon for precious metal recovery.

Barren solution from the columns reports to the barren tank inside the plant where the pH is adjusted, if necessary, and sodium cyanide is added prior to pumping to the heap. The loaded carbon from the last column in each train is removed and transported off-site for precious metal recovery.

The CIC Plant is designed to provide a minimum of 110% secondary containment capacity of the largest tank volume. This is accomplished through a combination of a sloping floor, floor sumps, concrete containment berms, and an HDPE-lined overflow channel to the Pregnant Pond. Reagent off-loading occurs within the plant where secondary containment is provided. All concrete joints have water stops and will be sealed with an epoxy grout. Process piping to convey pregnant and barren solutions to and from the process plant is located over 80-mil HDPE liner that acts as secondary containment. Secondary containment channels drain directly to the ponds.

A reagent staging area is included in the CIC Plant. Reagents planned for use in the process are sodium cyanide and antiscalant. These reagents are segregated in their own area and pumped to specific points within the CIC Plant. At the Project, liquid 30% sodium cyanide solution will be delivered by a tanker truck and stored in two 13,000-gallon steel tanks at the CIC Plant. Antiscalant will be transferred from a delivery truck to a 5,100-gallon bulk storage tank.

Loaded carbon will be shipped to an off-site process facility either at the Bald Mountain Mine facility, NEV0050045, other Kinross properties, or alternative permitted facilities in Nevada for collection of precious metals and reactivation. Reactivated carbon will be delivered back to the Project along with fresh carbon.

#### Stormwater Conveyance System

Stormwater diversion systems have been designed and constructed around the HLP to direct up gradient runoff resulting from the 100-year, 24-hour storm event into existing natural drainage courses. The diversion system includes culverts and armored (riprap) channels (as needed) conveying stormwater from the up-gradient watershed east and off the site to natural drainages south of the HLP.

Stormwater run-off from undisturbed areas upgradient will be diverted around the RDAs and pits and returned to natural drainages during operations. Berms are constructed at the pit crests to prevent as much meteoric water from entering the pits as practicable. Due to the nature of development of an RDA, alignments of stormwater diversion channels will require phased construction. The RDAs are graded in such a way to promote diversion of meteoric waters around the facility with berms (typical) or channels. Stormwater run-off from disturbed areas will be collected in the diversion channels and routed to sediment basins, where applicable. The diversions will be designed to handle the 100-year, 24-hour storm event. Upon RDA reclamation, diversions may need to be reestablished to provide long-term erosional stability. The RDA footprints include a buffer zone adequate for stormwater diversion construction.

Hydrologic and hydraulic calculations were performed to establish design peak flows, runoff volumes, channel capacities, minimum channel dimensions, and slopes required to pass the design peak flows from off-site, up gradient watersheds that will be diverted around the HLP. Off-site stormwater diversion channels were designed to transport flow around the facility and discharge into natural drainage courses. The stormwater diversion channels were designed to withstand the discharge of the peak flow of a 100-year, 24-hour storm event of 2.95 inches.

Stormwater conveyance channels consist of trapezoidal channels with 3H:1V side slopes (maximum) and minimum base widths and depths providing for 0.5 feet of freeboard during peak design flow conditions. Riprap protection was used in steeper channel areas to minimize erosion during a design storm event.

### Ancillary Support Facilities

Ancillary support for the Project includes but is not limited to an administrative building, truck shop, warehouse building, fueling island with a fuel and lubricants storage area, and a truck wash facility. The truck wash facility consists of a large, enclosed vehicle wash with 12 spray monitors, fed by a 45,000-gallon storage vault that will use connected sumps to clean and recycle wash water. The sumps use a series of overflow and underflow weirs to separate sediment and oils, respectively. These sumps can be drained so sediments can be removed and handled appropriately. Petroleum contaminated soil (PCS) from the sumps and other operational areas will be initially moved to a PCS storage area with secondary containment. When the PCS containers reach capacity, they will be directly transported to the onsite PCS Management pad located west of the Vantage Pit. Freshwater makeup will be provided as needed from the freshwater loop. The storage vault, sumps, and floors are reinforced concrete with flexible water stops installed at all cold joints and construction joints to minimize migration of solution beyond containment.

An EDC was received by the Division on 6 July 2020 to add the Bald Mountain Mine NEV0050045 PCS management plan to the South Operations Area – Vantage Mine Complex Permit. The Bald Mountain Mine PCS management plan was added to the Permit

with a modification to Permit Part I.L. The EDC was approved by the Division with the issuance of Permit Revision 01 on 23 December 2020.

### C. Receiving Water Characteristics

The Project site is located within the Nevada Division of Water Resources (NDWR) Long Valley hydrographic basin. Long Valley hydrographic basin (Region 10, Basin no. 175) encompasses 651 square miles with an estimated perennial groundwater yield of 6,000 acre-feet per year. Long Valley is a closed basin, which means there is no surface water outflow. The site is approximately 4 miles east of the Long Valley/Newark Valley hydrographic boundary.

The water quality analysis procedure included the identification of a set of water samples from the Paleozoic carbonate aquifer that are representative of water to be extracted as part of the Project. In total, thirteen samples from 2007 and 2016 at the Alligator Ridge Well (ARW-1), Goicoechea (G-S), Minoletti (M-S), Warm Springs (W-S), Mud Springs (MD-S) and Woodchuck Springs (WDS) were analyzed for water chemistry. The results show that the water meets NDEP Profile I reference values except for arsenic (As) with a concentration of 0.014 mg/L in ARW-1 from March 2016, and a single sample that exceeds the pH criterion. The waters are circum-neutral with low concentrations of metals. All the waters are calcium-bicarbonate type waters.

Inflow into the hydrologic study area (HSA) is from recharge and underflow. Outflow from the HSA is almost entirely in the regional carbonate aquifer in Newark Valley and the southern end of Long Valley. This is significant because the Project rests above a major flow path (from north and east towards the south) of the regional aquifer. The regional carbonate aquifer flows out of the HSA to the south from the Project.

There are 26 wells within a 5-mile radius of the project area, with five wells in the adjacent Newark Valley to the west. Groundwater within Long Valley does not have a designated use assigned by the NDWR. There is currently 6,000 acre-feet of groundwater permitted for pumping from Long Valley, and the primary use for the groundwater is mining, with lesser volumes for irrigation and stock water. Flow directions are dependent on pumping rates and the zone of influence within the vicinity of these actively pumping wells.

According to the NDWR online well database, there are four wells currently installed within a 1-mile radius of the HLP. Depth to water in three wells to the south-southeast of the HLP ranges from 480 to 551 feet below the ground surface. The fourth well, located north of the HLP was drilled to 900 feet total depth and did not encounter groundwater.

### D. 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 published on the Division website: <a href="https://ndep.nv.gov/posts/category/land">https://ndep.nv.gov/posts/category/land</a>. 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 the public notice is posted to the Division website. 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 or 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. <u>Proposed Determination</u>

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

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

See Section I of the Permit.

## G. 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 well(s). 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 (the Service) is authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with State permits may

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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: Allie Thibault
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Revision 00: Permit Renewal with BP updates