FACT SHEET
(pursuant to NAC 445A.401)

Permittee Name: **The Plum Mining Company, LLC**
P.O. Box 1118
Virginia City, NV 89440

Project Name: **Billie the Kid Project**

Permit Number: **NEV2000109 (Minor Mod 2011)**

A. Location and General Description

Location: The Billie the Kid Project is located on public and private land in the southwest portion of the Virginia Range near the town of Gold Hill in Sections 5, 6, 7, and 8 of Township 16 North, Range 21 East, Mount Diablo Baseline & Meridian. The mine site is adjacent to Highway 342 and the process facility is located approximately two (2) miles west of the town of Gold Hill. The mine and process facilities are separated by approximately two (2) miles.

General Description: This project consists of open pit mining with ore processing using conventional cyanide heap leaching technology with precious metal recovery via the Merrill-Crowe process. The precipitate is dried, mixed with fluxing agents, and melted in a gas or electric furnace to produce gold doré. Up to 1,000,000 tons of ore are permitted to be processed per year, including 144,000 in the high-grade ore mill process. The facility is required to be designed, constructed, operated and closed without any discharge or release in excess of those standards established in regulation except for meteorological events which exceed the design storm event.

B. Synopsis

The project includes open pit mines, a crushing plant, a heap leach pad (5 cells), process ponds and overflow ponds, cyanide tank, and Merrill-Crowe plant as well as support facilities such as lab trailers, office, storage, and shop.

Ore is obtained from a small open pit mine near Highway 342 and Gold Hill. As part of the Major Modification submitted in March 2009, and approved by the Division in October 2009, mining was expanded to both the east and west sides of Highway 342 in the Lucerne/Billie the Kid mining zones. Run of mine ore is segregated by grade and type in open stockpiles prior to crushing and placing on the heap leach pad.

Waste rock generated from this mine is placed in waste rock dumps adjacent to the mine. Continued characterization of the waste rock has not indicated acid generating potential. However, the waste rock generated each quarter is required by the permit to be characterized to confirm that it is non-reactive.

Available data indicate that the proposed pit depths will not intercept groundwater. The mined ore is hauled to the crushing plant, located approximately two miles to the west of the Billie the Kid pit where the ore is crushed to 1¼ inch minus at a maximum rate of 400 tons per hour. Agglomeration using lime/cement may be added in the future if required. The ore is then stacked on the heap leach pad to a maximum heap height of 105 feet. Lift heights and bench widths are required to be maintained for physical stability. In addition, ore setbacks are required from the edge of the liner to the toe of the first lift. The latest stability analysis submitted with the application for major modification in March 2009, can be found in Division files.

The leach pad will ultimately encompass approximately 677,000 square feet consisting of five cells, which are planned to be constructed in five phases. As of August 2011, three cells have been constructed. The pad will ultimately accommodate 2.4 million tons of ore (105 feet high). Design of the leach pad meets the regulatory design criteria consisting of a composite liner with leak detection. A geosynthetic clay liner (GCL), equivalent to a low conductivity soil layer consisting of one foot of 1 x 10^{-5}cm/sec soil, is placed on a cleared, grubbed and compacted subbase. Above the GCL, in each of the leach pad cells, a 2-inch diameter perforated polyvinyl chloride (PVC) pipe for leak collection and recovery runs the entire length of each cell. The perforated PVC pipes are placed in 6-inch deep trenches lined with GCL and filled with clean pea gravel. The pipes transition from perforated PVC to solid PVC pipes at the downgradient portion of each cell where the pipes are booted through the GCL. These leak detection pipes report to dedicated leak detection sumps. The transfer channel from the pad to the pregnant pond is also constructed with the same composite liner and leak detection system design. This channel leak detection pipe reports to a dedicated leak detection sump.

Three-inch diameter Advanced Drain System (ADS) hydraulic relief pipes, spaced at 50 foot centers, coupled with the agglomerated ore placed on the 60-mil (cell 1) or 80-mil (cells 2-5) HDPE liner, provide quick recovery of the process fluid and minimize the hydraulic head on the liner to one (1) foot or less. As part of the 2009 Major Modification, the solution application system was redesigned to operate with two circuits: barren solution at a rate of 660 gpm, and intermediate solution at a rate of 660 gpm (1320 gpm total).

Process solution is conveyed to and from the heap leach pads in 6-inch HDPE pipes. Initially, the pipes exit the leach pads in a 60-mil HDPE lined secondary containment trench. In the area where the pipes run past the north side of the Merrill-Crowe building, the pipes run through buried 24-inch HDPE secondary pipes which are further contained within 42-inch corrugated metal pipe for physical protection. The ends of the primary and secondary

pipes extend beyond the crest of the new Pregnant Pond where inspection for evidence of leakage can be done visually.

The barren and intermediate ponds, which pre-exist the 2009 Major Modification, are both double-lined with 60-mil HDPE. Geonet is located between the liners for collection and recovery of fugitive solution. Each of the pond bottoms is graded, directing leakage through the primary liner to a dedicated, clean gravel-filled, leak detection sump (one in each pond) where it is required to be evacuated via an 8-inch diameter PVC pipe that is perforated within the sump. The capacity of the sump in each pond is 9 gallons (gal). The crest dimensions for the Barren Pond are approximately 101 feet by 98 feet, with a maximum depth of 8 feet. The crest dimensions for the Intermediate Pond are approximately 102 feet by 99 feet, with a maximum depth of 10 feet. Total working capacity of the ponds at two (2) feet of freeboard is approximately 164,000 gal for the Barren Pond and approximately 250,000 gal for the intermediate pond. Spillways two (2) feet below the pond crest prevent overtopping by diverting excess fluid into the pregnant pond.

A new Pregnant Pond was included as part of the 2009 Major Modification. The pond design includes 80-mil primary and 60-mil secondary HDPE liners with geonet placed in between for collection and recovery of fugitive solution. Any leakage through the primary liner will be diverted to the sump from which it can be evacuated through a 6-inch diameter PVC pipe which daylights at the pond crest. The capacity of the sump will be 287 gal. Working capacity of the pond will be approximately 2.9 million gal at the bottom of the spillway connecting the pregnant pond to the intermediate pond (2 feet of freeboard) with overall dimensions of the pond approximately 176 feet by 218 feet and 25 feet deep. The spillway will be single-lined with 80-mil HDPE and is only intended to be used during upset conditions, with fluid required to be evacuated to a process component acceptable to the Division within 20 days of any such event.

The Double-lined Overflow Pond, which pre-exists the 2009 Major Modification, is lined with 60-mil HDPE primary and secondary liners, with geonet in between for collection and recovery of fugitive solution. Total capacity of the pond is approximately 623,100 gal at the bottom of the overflow channel connecting to the single-lined overflow pond (2 feet of freeboard). The pond includes a clean gravel-filled leak detection sump to which all fugitive solution reports and from which it can be evacuated through an 8-inch diameter PVC pipe which is perforated within the sump and daylights at the pond crest. The capacity of the sump is 8 gal.

The Single-lined Overflow Pond, also pre-existing the 2009 Major Modification, is lined with a single 60-mil HDPE liner. Total capacity of the pond is approximately 1.4 million gal at the bottom of the overflow channel connecting to the Double-lined Overflow Pond (2 feet of freeboard). Any process solution that is diverted to the single-lined overflow pond during an upset condition is limited to 20-day residence, after which it must be evacuated to a process component acceptable to the Division.

The fluid management system has been designed to contain the volumes resulting from the 25-year, 24-hour storm event in addition to process solution applied to the heap and returning from the leaching plant at 1800 gpm for 24 hours within the operational freeboards of the ponds. The system is also capable of containing runoff resulting from the 100-year, 24-hour storm event, along with process solution draindown, within the crest volumes of the ponds. Diversion ditches have been designed and constructed to accommodate and divert flow resulting from the 100-year, 24-hour storm event around the process components.

In past permit revisions, the Frog Pond, a natural depression located northeast of the Merrill-Crowe facility, has been included in the monitoring requirements. The accumulation of meteoric water in an area close to the heap leach pad was cause for concern, prompting the addition of the requirement for quarterly analysis of the water (when present). Since the first quarter of 2006, sufficient water was available for sampling only once (that same quarter) and showed exceedances of the Profile I reference values for aluminum (3.87 mg/L) and iron (2.04 mg/L). As part of the 2009 Major Modification, this pond was filled in and regraded and was removed from the monitoring requirement list in the permit.

The existing cyanide tank containment pad located adjacent to the Merrill-Crowe facility, was designed and constructed to provide containment equal to 110% of the tank volume and is sloped to drain into the intermediate pond. The Merrill-Crowe facility itself was upgraded as part of the 2009 Major Modification to increase capacity to allow a processing rate of 600 gpm. The building containment has sufficient capacity to hold 110% of the volume of the largest process component in the system. Both of these containment systems (cyanide tank and Merrill-Crowe facility) drain to the Barren Pond.

A Minor Modification was submitted in June 2011 which proposed further expansion of the Merrill-Crowe building. The increased area will house clarification filters, a deaeration tower, refinery, mercury scrubber, and doré furnace baghouse, all on concrete containment equal to or greater than 110% of the largest tank volume provided by the slab, stem walls and sumps. Additional areas will be used for office space, laboratory, and employee facilities (restrooms, lunchroom, etc.). The pipe from the laboratory drain will be double contained (6-inch diameter HDPE pipe in 60-mil HDPE lined ditch) up to the discharge point at the crest of the new Pregnant Pond.

The same Minor Modification also proposed changing the geometry of the new Pregnant Pond but maintaining the same volume and liner configuration, and established a phased approach to construction of the Major Modification components whereby the new mill facility will be constructed in stages rather than all at once. The Minor Modification was approved by the Division in August 2011.

As part of the 2009 Major Modification, a milling and agglomeration facility was added north of the heap leach pad. This facility includes a jaw crusher, low grade ore stockpile, high grade ore bin, high grade ore milling/leaching circuit, agglomerator, and a conveyor system. The components adjacent to the mill building are situated over an 80-mil HDPE

liner which is protected by a one (1) foot thick layer of ¾" gravel. The liner subbase is graded, compacted to 90% of maximum dry density (modified Proctor), and sloped toward the leach pad to ensure that any fugitive solution does not run off containment.

The milling/leaching plant is designed to process 144,000 tons per year. A wet ball mill is operated in a closed circuit with hydrocyclones, a gravity gold recovery circuit, leach tanks, a pulp thickener, and a filter. High grade ore will be crushed to minus 100 mesh size before introduction into the gravity circuit for recovery of liberated free gold. The ground ore is then leached in a vat with cyanide solution and the pregnant fluid pumped at a rate of 600 gpm to the expanded Merrill-Crowe facility. The mill building itself includes a concrete floor with stem wall to act as containment. The total containment volume is greater than 110% of the largest tank.

Low grade ore is conveyed to the agglomerator, if required, after crushing, where it is mixed with filter cake from the vat leaching process, cement, and barren solution prior to being loaded on the leach pad. This process binds the fine particles to the larger ones in a form that will not degrade under leaching conditions but will promote uniform permeability throughout the heap. The agglomerator and all conveyors from that point out to the heap are located over an 80-mil HDPE liner which drains to the leach pad liner system. The construction of the mill and agglomerator may not be carried out initially, in which case ore will be placed directly on the heap leach pad after crushing.

C. Receiving Water Characteristics

Measurements in wells at the mine site have shown that the depth to groundwater ranges from 35 to 90 feet. Analyses of the monitoring well (GWMW and GWMW-1) and production well (WS-1, WS-2 and WS-3) samples have shown the groundwater constituent levels to be below the Profile I reference values with occasional exceedances of iron in GWMW. Background water quality will be monitored by means of an upgradient monitoring well (GWMW-1) installed as part of the 2009 Major Modification.

Surface water resources in the project vicinity are limited. However, several springs, which flow during non-drought years, feed intermittent drainages. These intermittent drainages coalesce in American Flat and a single channel passes through American Ravine west of the mine site. A surface water sample point, located at the downgradient end of the culvert under the road approximately 1000 feet south of the mine property in American Ravine, is included in the Water Pollution Control Permit. Drainage from the mine site is to the southeast through Gold Canyon, which flows into the Carson River near Dayton, Nevada.

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 contained within the permit, is being sent to the **Nevada Appeal** for publication. The notice is being mailed to interested persons on the

BMRR 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 approve the major modification.

F. Proposed Effluent Limitations, Schedule of Compliance, and 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 monitoring wells and ephemeral surface water in American Flat Ravine. 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.C. 701-718, it is unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 CFR 10, April 15, 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 (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: Paul Eckert

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