

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**BOARD ORDER NO. R6V-2014-XXXX
WDID NO. 6B151404003**

WASTE DISCHARGE REQUIREMENTS

FOR

**BLUE EAGLE LODGE MINING COMPANY
BLUE EAGLE LODGE MINE, MIDDLE BUTTES**

Kern County

The California Regional Water Quality Control Board, Lahontan Region (Water Board) finds:

1. Discharger

Blue Eagle Lode Mining Company (BELMC) is the project proponent and the mine operator. BELMC registered with the California Secretary of State in 2003 and has an active status with a business entity number of C-2508056. John C. Burton is President and agent for service of process for BELMC. The Clifford G. and Alice Burton Trust is the owner of the property on which the mining will be conducted. BELMC is a Burton family-owned small business formed to develop and operate the proposed mine. For the purpose of this Water Board Order (Order), BELMC and the Clifford G. and Alice Burton Trust are referred to collectively as the "Discharger."

2. Order History

This is a new Order for an underground mine advanced near the bottom of the existing Shumake Pit. The Water Board previously permitted a gold extraction operation associated with the Shumake Pit ore, known as the Shumake Project. The Dischargers for the Shumake Project were the Cactus Gold Mines Company, Middle Buttes Partners Ltd, and the United States Bureau of Land Management. Gold from the ore removed from the Shumake Pit was extracted with a 100-acre, lined cyanide heap leach pad located adjacent to the Shumake Pit. The Shumake Project also included two lined surface impoundments covering approximately five acres.

The Water Board permitted these operations under Order 6-88-46 on April 14, 1988. The Water Board amended the orders in Board Order No. 6-88-46A1 to allow reclassification of the wastes in the heap leach pad from a Group B to a Group C mining waste on February 10, 1994. The Water Board issued Order 6-98-26 on May 7, 1998 for closure and post-closure maintenance. The Water Board issued Order R6V-2004-0019 on June 9, 2004 rescinding Board Order 6-98-26, indicating the completion of necessary closure activities, including detoxifying the cyanide solution used to extract gold on the heap leach.

3. Reason for Action

On April 14, 2014, the Discharger submitted a complete Report of Waste Discharge (ROWD) to the Water Board. The Waste Discharge Requirements (WDRs), in this Order are issued in response to the submittal of the ROWD. The WDRs include Best Management Practices (BMPs), discharge effluent limitations, receiving water limitations, and monitoring of discharges and the receiving water to verify compliance with water quality objectives.

The ROWD proposes the development of an underground mine with related operations including temporary storage of ore and waste rock. Wastewater produced from mine dewatering tunnels will be discharged to land by infiltration as a primary means of disposal. Evaporation on high wall areas of a former open pit mine is proposed as a secondary means of wastewater disposal. Wastewater will also be used for dust control.

The spray evaporation of wastewater on high walls of the pit, infiltration of wastewater in the bottom of the pit, and the storage and disposal of waste rock are discharges to land, subject to regulation by the Water Board. The discharge of wastewater for dust control is not considered to be a discharge providing that the wastewater is applied in a manner that does not cause ponding or surface runoff.

4. Mine Location

The gold and silver mining project is located on the northwestern slopes of the Middle Buttes in the western part of the Mojave Desert, approximately 8 miles southwest of the city of Mojave, in Kern County (Attachment A - Site Location Map). The aboveground operations, which support the underground mine, will occur entirely within an existing former open pit mine, known as the Shumake Pit. The Shumake Pit occurs within three parcels: 1) a 201-acre parcel, Assessor's Parcel Number (APN) 346-021-04, 2) a 30-acre parcel APN 346-021-01, and 3) a 30-acre parcel APN 346-021-02. The entrance, or portal, to the underground mine will be near the bottom of the Shumake Pit. The underground mining operations are proposed to occur within APN 346-021-04 within the north half of Section 17, Township 10 North, Range 13 West, San Bernardino Base and Meridian (Attachment B - Site Map). The aboveground operations, including access roads, and underground mine workings are hereafter referred to as the Facility. The Facility is located approximately one mile northeast of the intersection of Backus Road and Tehachapi-Willow Springs Road.

5. Land Use

The Kern County Zoning lists the land use for the Project area as: A - Exclusive Agriculture, and A-FP – Exclusive Agriculture/Floodplain. The areas surrounding the Middle Buttes include open space, sparsely distributed rural residences, farmland, and a gravel processing facility to the east.

6. Proposed Operations and Life of Mine

The Discharger will advance a mine tunnel downward from an elevation of approximately 2805 feet mean sea level (msl) in the Shumake Pit using drill and blast methods. The tunnel, with approximate dimensions of 10 feet wide and 12 feet tall, will decline toward the ore body at a slope of 15 percent. Waste rock from the tunnel will be temporarily stored for up to 5 years at a time in a waste management unit (WMU) before being returned to the underground workings. Potential ore material will be placed on an ore pad located in the Shumake Pit where it will be assayed and either promptly shipped off-site for processing or moved to the WMU for temporary storage.

The Discharger anticipates that when the decline is driven to the elevation of first groundwater, it will be necessary to begin pumping in order to keep the mine workings dewatered. Upon reaching the groundwater table and prior to any further tunnel advancement, this Order requires the Discharger to sample first encountered groundwater to characterize initial groundwater quality to confirm the wastewater to be discharged has better water quality than the receiving water.

Wastewater from the mine dewatering system will be monitored and discharged to the designated infiltration galleries, or when infiltration capacity is reached, sprayed onto designated walls of Shumake Pit for evaporation. Wastewater will also be utilized for dust control on unpaved roadways. Based on historic data provided by Clifford Burton from the underground Cactus Mine, up to 25 gallons per minute (36,000 gallons per day) will be pumped to the infiltration and evaporation systems. This Order requires the Discharger to monitor the water quality of the discharge and the receiving water at compliance points surrounding Shumake Pit.

The mine could operate for as long as 50 years depending upon ore grade and commodity prices. Temporary shut downs of mining operations may occur during the life of the mine.

7. Mining History

There is a long history of mining in the Middle Buttes area. Gold float removed from its source by weathering processes was first discovered in the area in 1894. Mining began at the Middle Buttes in 1935 once the source vein for the gold float was located. There were a total of nine mines located in the Middle Buttes area by 1937. The Cactus Queen Mine, which encompasses the area of the planned Blue Eagle Lode Mine, was operated by the Cactus Mine Company from 1935 to 1943. The War Production Board ordered the mine shut down in 1943 for World War II and it remained idle from 1943 to 1947. Burton Mines operated the mine from 1948 to 1952 using primarily tunneling methods. The Coca Mines/Hecla Mining Company operated the mine as an open pit between 1988 and 1996 as described in Finding 2. Mining stopped after 1996 when open pit mining methods ceased to be profitable. Attachment B highlights historic open pit mines in the Middle Buttes area.

8. Site Topography

The Blue Eagle Lode Mine is located on the northwest-facing slope of the Middle Buttes (Attachment B – Site Map). The Middle Buttes, which stick out from the surrounding alluvial plain, are about one mile in diameter and range in elevation from approximately 2,900 to 3,500 feet above mean sea level (msl). The alluvial plain occurs at approximately 2,900 feet msl. The elevation of the bottom of the Shumake Pit is approximately 2,795 feet msl.

9. Existing Site Conditions

The existing open pit excavation (Shumake Pit) is oval-shaped about 1,600 feet long, 900 feet wide and varies from 450 to 250 feet deep (Attachment “C” Cross-section of Shumake Pit). The access road down into the pit is on the southeast facing slope. Access from the nearest paved highway to the top of the pit is by way of an unpaved roadway, about two miles long.

The Shumake Pit currently consists of bare rock with little to no vegetation. During open pit mining operations, the Shumake Pit was advanced to the approximate level of the water table. In 1997, the bottom of the pit was backfilled to its current elevation with approximately 55 feet of waste rock. As of June 30, 2014, the groundwater table varies between approximately 4 feet to 45 feet below the existing bottom of the Shumake Pit.

Existing groundwater quality conditions at the site are addressed in Finding 18 below.

10. Geology of Middle Buttes Gold District

The Middle Buttes is an isolated volcanic dome of Miocene volcanic rocks and Cretaceous intrusive rocks surrounded by alluvial soils. The Middle Buttes volcanic dome complex is comprised of coalescing lava domes, flows, vent breccias, and pyroclastic deposits lying unconformably on crystalline basement rocks of the Sierra Nevada batholith. The volcanic rocks range in composition from andesite through rhyolite and are cut by numerous faults and veins. The gold and silver ores of the Blue Eagle Lode Vein (also known as the Cactus Vein) occur in quartz veins and in the intervening altered rhyolites. The larger veins are characterized by pyrite, arsenopyrite, and silver sulfosalts, with minor base metal sulfides and gold. Gold in the altered rhyolite occurs in quartz veinlets and in assemblages of iron oxides.

The ore deposits of the Middle Buttes consist of anomalous abundances of gold, silver, mercury, arsenic and antimony. This is consistent with studies of the Shumake heap leach pad sediments by the United States Geologic Survey which identified arsenic, antimony, sulfide salts, and possibly mercury in the processed rock material. These constituents, in addition to possible oxidation and acidification effects are assumed to be the major constituents of concern with potential to affect water quality.

A northwest trending fault known as the Silver Prince Fault runs along the western boundary of Shumake Pit (Attachment E). No faults active in the Holocene are known to exist near Shumake Pit.

11. Hydrogeology

The volcanic and crystalline basement rocks that make up the Middle Buttes are generally impermeable, except where jointing, fractures and weathered zones yield small quantities of water. The Discharger has indicated in the ROWD the historic Cactus Mine workings and the proposed Blue Eagle Lode Mine workings will not connect during underground mine advancement to avoid hydraulic interconnection and groundwater inflows from historic water-filled workings. Historic records from the Cactus Mine provided by Cliff Burton indicate variable flow rates depending on the presence of water-bearing fracture zones. Mr. Burton estimated a 25 gallon per minute average inflow rate into the Cactus Mine workings. In the ROWD, the Discharger estimates a sustained pumping rate of 2 to 25 gallons per minute (2,900 to 36,000 gallons per day) will be necessary to keep the underground workings dewatered.

The alluvial sand and gravel aquifer surrounding the Middle Buttes is the primary aquifer in the area. The aquifer surrounding Middle Buttes is part of the Antelope Valley and Fremont Groundwater Basins (Basins 6-44 and 6-46, respectively) as designated by the California Department of Water Resources (DWR).

Groundwater directly beneath the Middle Buttes is not considered by the DWR to be part of the Antelope Valley Groundwater Basin or the Fremont Groundwater Basin and is considered by DWR to occur in a "No Flow Zone" (Attachment "C" – DWR Groundwater Basins and Sub-basins). The Middle Buttes are designated as a no-flow zone because the Middle Buttes are composed of two relatively impermeable groups of igneous rock: (1) crystalline intrusive bedrock and (2) fine-grained extrusive (volcanic) deposits. The igneous bedrock is considered by DWR to contain only small amounts of recoverable groundwater and is not part of the alluvial groundwater aquifer surrounding the Middle Buttes.

Groundwater level data suggest the groundwater in fractures beneath the Middle Buttes may be hydraulically connected to the surrounding alluvial aquifer in some locations. The nearest domestic and agricultural supply wells are approximately 1 to 1 ½ miles away to the south of Shumake Pit (Attachment B – Site Map). The Silver Prince Fault is located between Shumake Pit and the southern portion of the Middle Buttes. Groundwater levels drop approximately 95 feet on the southern side of the fault compared with the northern side indicating the fault creates a substantial impediment to groundwater flow from Shumake Pit (northern) side of the fault to the southern side of the fault in the direction of the alluvial aquifer to the south.

Historical groundwater elevations in the alluvial aquifer near the site range from approximately 2754 feet msl near the north end of the Middle Buttes to about 2595 feet msl at the south end of the Middle Buttes. Groundwater in the alluvial aquifer is recharged from the Tehachapi Mountains to the northwest, and from local creeks, and generally flows southeast toward Rosamond Dry Lake. Direct precipitation is generally considered to account for less than 5 percent of the recharge to the alluvial aquifer.

12. Hydrology

Surface and storm waters are considered part of the DWR Antelope Valley Hydrologic Unit (No. 626.00). The site is located near the boundary of Chafee Hydrologic Area (No. 26.10) and Willow Springs Hydrologic Area (No. 26.30). Oak Creek is an intermittent stream that originates in Oak Creek Canyon along the base of the Tehachapi Mountains and drains to the southeast, passing along the western edge of the Middle Buttes. It is normally a dry creek, but sometimes carries water during heavy rainstorms.

The Project site is located in a closed basin (Shumake Pit) where no seasonal or perennial streams occur. Storm water collects at the bottom of the pit during the rainy season and occasionally forms a pond. The ponded water typically evaporates during the summer season leaving mineral residues. A salt crust has developed around the seasonal pond from evapo-concentration since the end of open pit mining operations. The quality of the intermittent ponded water is anticipated to be poor and to change seasonally as the pond forms from winter rains and evaporates in the spring and summer.

Oak Creek is approximately 200 feet higher in elevation than the bottom of Shumake Pit. Oak Creek is approximately 220 feet higher than the groundwater table. Given these elevation differences, groundwater beneath Shumake Pit cannot affect Oak Creek.

13. Climate and Precipitation

The site is located in the Western Mojave Desert area. The Middle Buttes area is subject to extreme temperature variations. Temperatures recorded at the weather station 8 miles northeast of the site ranged from a low of 8 degrees Fahrenheit to a high of 112 degrees Fahrenheit.

Rainfall averages 5.67 inches per year, the majority of the precipitation occurs between the months of October and March. Pan evaporation data from Backus Ranch weather station (NOAA #40418) was recorded between January 1940 and April 1962. The monthly evaporation rates over this time ranged from a low of just below 2 inches per month to a high of about 15 inches per month, yielding a corrected annual pan evaporation of 70 to 85 inches.

The area is known for relatively high winds which often peak in summer months. Average wind speeds at nearby Edwards Air Force Base are about 11 mph. Days with sustained wind speeds in excess of 50 mph are not uncommon. A wind farm is located north of the site indicating the persistence of wind in this area.

14. Receiving Water

This Order only authorizes discharges to land. Discharges to surface waters are not authorized by this Order. Therefore, groundwater is the only receiving water potentially affected by the proposed discharges. Wastewater will be discharged in Shumake Pit where it will evaporate or infiltrate downward to the groundwater beneath Shumake Pit. Groundwater from Shumake Pit area may be hydraulically connected to the Antelope Valley Groundwater Basin (DWR Basin #6-44) and the Fremont Valley Groundwater Basin

(DWR Basin #6-46) surrounding the Middle Buttes. Groundwater monitoring around Shumake Pit is required by this Order to detect, at the earliest possible time, a release from the Blue Eagle Lode Mine operations that may adversely affect groundwater quality.

15. Lahontan Basin Plan

The Water Board adopted a *Water Quality Control Plan for the Lahontan Region* (Basin Plan), which became effective March 31, 1995. This Order implements the Basin Plan.

16. Beneficial Groundwater Uses

The groundwater beneath the Middle Buttes is not part of a designated groundwater basin (Finding 14). State Water Resources Control Board Resolution No. 88-63, which is included in the Basin Plan (Appendix B), states:

“All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards with the exception of :

1. Surface and ground water where:

- a. *The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 μ S/cm, electrical conductivity) and it is not reasonably expected by Regional Boards to supply a public water system, or*
- b. *There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or ...”*

The average and maximum TDS concentrations in groundwater beneath Shumake Pit, as shown in Table 1 in Finding 18, are 3325 mg/L and 5400 mg/L, respectively. This groundwater at the point of discharge meets criteria 1.a. for exception to the municipal or domestic supply (MUN) designation. As Table 1 shows, this groundwater is also acidic, contaminated with multiple metals and other inorganic constituents exceeding their respective maximum contaminant levels allowed in drinking water.

The groundwater contamination cannot reasonably be treated for domestic use using either Best Management Practices (BMPs) or best economically achievable treatment practices. BMPs are primarily preventative measures and would not be effective for treating contamination already existing in groundwater. The viability of economically treating the receiving groundwater also is not achievable. Treatment of the receiving groundwater to meet State and Federal guidelines for potable use would require costly action, such as pre-treatments to adjust pH and coagulate and precipitate metals followed by ion-exchange or other costly methods (e.g., reverse osmosis). Ion-exchange processes require large amounts of chemicals for pH adjustment and precipitation of the metals from the groundwater as well as constant flushing and replacement of the ion-exchange material. In addition, the treatment processes produce waste solids that would need to be disposed of offsite, possibly as a hazardous waste.

Preliminary evaluation of the cost for such extensive groundwater treatment would be in excess of \$10,000 per acre-ft¹ of water. Compared to the Metropolitan Water District of Southern California's 2014 cost for full service treated water (i.e. for direct potable use) of about \$1,000 per acre-ft², treatment of the receiving groundwater for drinking water is not considered economically achievable. Therefore, the groundwater beneath Shumake Pit also meets criteria 1.b. for exception to the MUN designation.

Discharge limitations and receiving water limitations included in this Order do not allow water quality degradation at the point of discharge or at the points of compliance surrounding Shumake Pit, respectively. These limitations further protect groundwater beyond the points of compliance which may be suitable for the MUN designation by not allowing poor quality groundwater to spread to areas with better quality groundwater.

17. Discharge of Mine Wastewater and Authorized Disposal Areas

Groundwater will be pumped from the mine to keep the underground workings dewatered. Wastewater from pumping will be conveyed into settling/storage tanks prior to discharge via infiltration, spray evaporation, or dust control systems.

Infiltration systems will be designed to handle most or all of the dewatering wastewater with minor amounts diverted to evaporation systems during periods when infiltration capacity is reached. For a 25 gpm design flow rate, the Discharger has estimated the surface area or footprint of the infiltration galleries will be approximately 280 to 440 square feet.

This Order requires the Discharger to monitor groundwater levels in Shumake Pit to determine if infiltration capacity is reached. When infiltration capacity is reached, mine dewatering wastewater will be evaporated on the hard rock surfaces of the Shumake Pit highwall and associated rock benches.

The proposed spray evaporation areas are on the northwest-facing pit wall. The proposed evaporation area is approximately 500 feet in height with a 60 degree slope. There are six benches, 12- to 20-feet wide, spaced at intervals 85 feet in height. The two spray evaporation areas on the high walls are shown in Attachment "G."

The northern most area is approximately 243,000 square-feet in size and the southern area is approximately 320,000 square-feet in size for a total of 563,000 square feet. Water will only be applied at rates that can be evaporated. It is recognized that localized ponding on benches may occur, but this Order prohibits runoff or flow between benches. This Order requires monitoring and reporting of application rates. Additionally, storm water will be prevented from comingling with sprayed wastewater by prohibiting spray evaporation during precipitation events.

¹ Estimate provided by Discharger

² From http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html#Anchor-Treatment-24935

The area designated for infiltration is in Shumake Pit (Attachment "E") and the highwall areas designated for spray evaporation in Shumake Pit (Attachment "G") are the authorized areas for disposal of wastewater effluent. No other point of discharge is authorized by this Order.

Wastewater will also be recycled and used for dust control on the haul road. The unpaved haul road is approximately 4,400 feet in length (Attachment "G"). Wastewater for dust control is not considered a discharge providing that water is applied at rates that do not cause ponding or surface runoff. Best Management Practices to prevent ponding or surface runoff are required by this Order.

This Order includes discharge effluent limitations to prevent degradation of groundwater quality at the point of discharge in Shumake Pit and specific receiving groundwater limitations for COCs at compliance points surrounding Shumake Pit. Receiving groundwater limitations at the compliance points surrounding Shumake Pit will provide the earliest possible warning of any potential groundwater quality degradation due to lateral spreading of poor quality water away from Shumake Pit that may be caused by groundwater mounding of the discharge.

Baseline groundwater quality at the compliance points surrounding Shumake Pit will be determined with eight independent sampling events prior to any discharge. The average and maximum concentrations of COCs at each compliance point will provide the basis of specific groundwater limitations at each compliance point.

18. Basis for Effluent Limits

The Discharger provided data in the ROWD from four shallow test pits excavated in the area of the proposed infiltration galleries in Shumake Pit to characterize background water quality of the receiving water.

To characterize discharge water quality, the Discharger provided data in the ROWD from two monitoring wells advanced in the area of the proposed tunnel where dewatering will occur.

As discussed in Finding 16, these data collectively indicate the site is underlain by poor quality groundwater characterized by low pH and relatively high concentrations of dissolved inorganic constituents. The poor water quality in the historical mine workings beneath Shumake Pit is variable and some mixing may occur as hydrogeologic conditions change during future tunneling and dewatering operations. Some hydraulic connection between future tunnels and the poorest water quality beneath Shumake Pit may occur. While the proposed discharge is expected to be better quality than the shallow receiving water, this Order requires the discharge water quality to be as good as or better than the receiving water to allow for potential mixing during dewatering activities.

Inorganic Constituents of Concern

Table 1 shows the average and maximum concentrations of inorganic COCs that exceed maximum contaminant levels (MCLs) for the shallow groundwater in the area of the

proposed infiltration galleries. Background water quality of the receiving water is very poor. The concentrations of arsenic (As), iron (Fe), and aluminum (Al) are 14,000, 833, and 700 times their MCLs, respectively. The concentrations of cadmium (Cd), titanium (Ti), and antimony (Sb) are 34, 21, and 15 times their MCLs, respectively. The concentrations of sulfate (SO₄), nitrite (NO₂), and total dissolved solids (TDS) are 8, 7, and 3 times their MCLs, respectively.

Table 1 also shows average and maximum concentrations of the expected mine dewatering discharge. While water quality of the proposed discharge is also expected to exceed MCLs for some of the same constituents, the proposed discharge water quality is expected to be significantly better than the receiving water quality and is required to not degrade the receiving water quality.

Effluent limits for the inorganic COCs are based on groundwater background concentrations in the receiving water which is the shallow groundwater underlying Shumake Pit. The discharge effluent limits for inorganic constituents that exceed MCLs in the receiving water are provided in Table 3 in Order No. I.A.

Table 1: Groundwater Quality at Point of Discharge and Expected Discharge Quality

Constituent	MCL	Average Background Concentration at Point of Discharge	Maximum Background Concentration at Point of Discharge	Expected Discharge Average Concentration	Expected Discharge Maximum Concentration
Al	0.2	140	260	21	31
As	0.01	140	490	3.7	6.9
Be	0.004	0.01	0.03	0.006	0.0084
Cd	0.005	0.17	0.5	0.01	0.01
Cu	1.3	5.3	18	0.07	0.2
F	2	1.2	2.6	1	2
Fe	0.3	250	670	18	33
Ni	0.1	0.3	0.6	0.005	0.07
Pb	0.015	0.016	0.035	0.003	0.007
Se	0.05	0.06	0.15	0.0015	0.029
Sb	0.006	0.09	0.24	0.008	0.02
Ti	0.002	0.041	0.1	0.006	0.01
Zn	5	7.6	13	2.8	6.2
NO ₂	1	7	21	0.3	0.5
NO ₃	10	0.5	1.5	0.2	0.7
NO ₂ + NO ₃	10	7.5	22.5	0.5	1.2
SO ₄	250	2100	3100	520	630
TDS	1000	3325	5400	820	1000

Since nitrite readily oxidizes to nitrate in the presence of oxygen, nitrate effluent limits are the same as those for nitrite. The effluent limit for the combination of nitrite and nitrate further limits how much nitrogen can occur in either nitrogen species at one time.

pH

In addition to the elevated concentrations of inorganic constituents, the receiving water and the expected discharge are acidic. The average and minimum pH in the receiving water are 3.42 and 3.07, respectively. The average and minimum pH expected in the discharge are 3.91 and 3.69, respectively. Effluent limits for pH, based on background conditions in the receiving water, are listed in Table 4 in Order No. I.A.

Organic Constituents of Concern

Potential sources of organic constituents of concern are explosives and fuels. There is potential for organic constituents to have been discharged during historical mining operations which formed Shumake Pit and there is potential for future operations to discharge organic constituents, or spread previously discharged organic constituents. This Order requires organic constituents of concern in groundwater to be determined prior to any proposed discharges to distinguish between potential groundwater effects of past mining operations from groundwater effects of the proposed project. Routine monitoring of the organic constituents of concern in the discharge and the receiving water at the compliance points is required by this Order to verify groundwater is not impacted by organic constituents of concern.

The effluent limits for organic constituents are based on water quality goals and the best practicable treatment and control technology for treating organic constituents of concern. The best practicable treatment or control technology for organic constituents is capable of reliably removing most organic constituents to non-detect levels. Because fuel and organic explosive constituents are not naturally occurring, pre-existing background concentrations of these constituents are considered non-detect (below analytical laboratory reporting limits) in waters of the state in the Lahontan Region.

The water quality goals and commonly achieved reporting limits for the organic constituents of concern are presented in Table 2. The effluent limits for organic constituents, listed in Table 5 of Order No. I.A., are based on water quality goals and best practical treatment or control technology. The discharge of an effluent containing constituents in excess of the following limits is prohibited. All samples of effluent are to be single grab samples.

Table 2: Analytical Methods, Reporting Limits, and Water Quality Goals for Organic Constituents

Constituent	Reporting Level (µg/l)	Analytical Methods *	Water Quality Goals (µg/l)	Type
Total Petroleum Hydrocarbons (C2 – C15)	50	EPA 8015	50	Taste and Odor
Total Petroleum Hydrocarbons (C16 - C46)	50	EPA 8015	100	Taste and Odor
Ethylene Glycol	300	EPA 8015	14,000	DW Health Advisory** SNARL***
Benzene	0.1	EPA 8260	1.0	Primary MCL
Ethyl benzene	0.5	EPA 8260	29	Taste and Odor
Toluene	0.5	EPA 8260	42	Taste and Odor

Xylenes	0.5	EPA 8260	17	Taste and Odor
Naphthalene	0.5	EPA 8260	21 17	Taste and Odor Notification Level****
HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)	<1.0	EPA 8330	400 350	DW Health Advisory Notification Level
RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine)	<0.3	EPA 8330	2 0.3	DW Health Advisory Notification Level
1,3,5-TNB (1,3,5-Trinitrobenzene)	<0.3	EPA 8330	210	SNARL
1,3-DNB (1,3-Dinitrobenzene)	<0.3	EPA 8330	1 0.7	DW Health Advisory SNARL
NB (Nitrobenzene)	<0.3	EPA 8330	14	SNARL
NG (Nitroglycerine)	<0.3	EPA 8330	5 5	DW Health Advisory SNARL
2,4,6-TNT (2,4,6-Trinitrotoluene)	<0.3	EPA 8330	2 1	DW Health Advisory Notification Level
2,4-DNT (2,4-Dinitrotoluene)	<0.3	EPA 8330	14	SNARL
2,6-DNT (2,6-Dinitrotoluene)	<0.01	EPA 8330	0.05	US EPA IRIS*****
2-NT (2-Nitrotoluene)	<0.3	EPA 8330	80	Taste and Odor
3-NT (3-Nitrotoluene)	<0.3	EPA 8330	80	Taste and Odor
4-NT (4-Nitrotoluene)	<0.3	EPA 8330	80	Taste and Odor

*Alternative analytical methods that provide equivalent detection limits may be proposed.

**Drinking Water Health Advisory Lifetime Exposure (US EPA, 1996)

***Suggested No-Adverse-Response Levels for non-cancer health effects (SNARL)

****California Department of Health Notification Level

*****US EPA Integrated Risk Information System (IRIS)

19. Title 27 California Code of Regulations Exemption for Wastewater Discharge To Land

As provided in title 27, California Code of Regulations (CCR), section 20090, the following activities shall be exempt from the State Water Resources Control Board-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed. Title 27, CCR, section 20090(b) states:

“Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leach fields if the following conditions are met:

- (1) The applicable RWQCB (Water Board) has issued WDRs, reclamation requirements, or waived such issuance;*
- (2) The discharge is in compliance with the applicable water quality control plan; and*
- (3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.”*

The discharge of wastewater that is the subject of this Order meets the preconditions listed in Title 27,CCR, section 20090(b) for wastewater discharge exemption:

- (1) The discharges of wastewater to the infiltration galleries and highwalls in Shumake Pit are regulated by the WDRs in this Order.
- (2) This Order only authorizes the discharge of waste in compliance with the Basin Plan.
- (3) The wastewater discharges are not required to be managed as a hazardous waste because sample data have shown that the waste characteristics do not meet criteria to classify the waste as a hazardous waste.

20. Antidegradation Policy

State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," states,

- "1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that a change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.*
- 2. Any activity which produces or may produce a waste...and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur, and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."*

The quality of the receiving groundwater at the project site in Shumake Pit is poor quality with respect to many constituents, including arsenic, iron, aluminum, cadmium, titanium, antimony, sulfate, nitrite, total dissolved solids, and pH, as discussed in Finding 18.

The proposed discharge is expected to have better water quality than the receiving water and therefore is not expected to degrade water quality in the vicinity of the discharge. This Order requires discharge monitoring to demonstrate compliance with discharge effluent limits. Effluent limits in this Order require the discharge to not degrade the water quality of the receiving water compared with pre-project conditions.

This Order also requires that groundwater with poor quality is not hydraulically spread by the discharge from beneath Shumake Pit to surrounding areas with better water quality. Background water quality conditions will be established at a minimum of four locations surrounding Shumake Pit prior to discharge of wastewater. This Order requires routine monitoring at these compliance points to demonstrate background water quality is not degraded by the Project discharges.

The Water Board has considered antidegradation policies and finds that the subject discharge of mine dewatering wastewater to land is consistent with provisions of these policies and is in the best interest of the people of the state of California. This Order is consistent with Resolution No. 68-16 because groundwater quality will not be allowed to degrade with respect to background conditions within and surrounding Shumake Pit. The proposed Project and associated discharges are in the best interest of the people of California because of the potential economic benefits of mining.

21. CEQA

The proposed Project is subject to the provisions of the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 et seq.) The County of Kern is the CEQA Lead Agency for this project. The Water Board is a Responsible Agency under CEQA for this Project. The County of Kern issued a Mitigated Negative Declaration for the project on XXXX XX, 2014 for 30-day public review. On XXXX XX, 2014, the Kern County Board of Supervisors certified a Mitigated Negative Declaration (SCH No. XXXXXXXXXXXX) for the proposed Project.

The Water Board has considered potential impacts to water quality from the Project identified in the environmental documentation and mitigation measures incorporated in the project to address potential water quality impacts. As a Responsible Agency, the Water Board finds potential significant impacts to water quality may occur due to the implementation of the proposed Project and has included mitigation measures, required by this Order, to reduce the potential water quality impacts to less than significant. These findings and the mitigation measures are described below.

Potentially Significant Water Quality Impact and Mitigation Measure No. 1

The discharge of mine dewatering wastewater in Shumake Pit may result in the degradation of water quality within Shumake Pit if the discharge water quality is less than the pre-project conditions for groundwater quality beneath Shumake Pit. The discharge may also result in degradation of water quality outside of Shumake if the poor quality groundwater beneath the pit is spread to areas with better water quality outside the pit. The requirements of this Order include effluent discharge limits restricting the amount of contaminants that may be discharged to prevent groundwater quality degradation beneath the pit. This Order protects groundwater quality outside the pit by establishing pre-project water quality conditions at compliance points surrounding the pit and includes the requirement that water quality cannot be degraded at these compliance points as compared with pre-project conditions.

Monitoring and reporting requirements for the effluent and receiving water, included in this Order, are designed to alert the Discharger and the Water Board if water quality degradation or spreading of poor water quality occurs and to monitor the effects of the discharge for compliance with these requirements.

In addition to monitoring and reporting requirements, the Discharger has proposed the following mine water discharge Best Management Practices (BMPs) to minimize or eliminate degradation of water quality.

Mine Water Discharge BMPs:

1. Discharge of mine wastewater will be primarily by infiltration. Water will also be used for dust suppression. Spray evaporation will be used occasionally, when water cannot be infiltrated or used for dust suppression.
2. When spray evaporation occurs, the Discharger will alternate the areas of the pit highwall that are sprayed so that the water will evaporate and will not collect, run off, or pond on the bottom of the pit. The spray evaporation areas will be monitored during spraying and evaporation activities so that runoff and ponded water do not occur. The spray evaporation system will be equipped with sprinkler heads and valves so that section of the highwall can be sprayed while other sections dry out.
3. To minimize and/or prevent co-mingling of mine wastewater with stormwater, mine wastewater will not be discharged for spray evaporation on Shumake Pit high walls during precipitation events.
4. Direct discharge of mine wastewater to the mine pit floor will not be allowed.
5. Adequate storage capacity of pumped mine wastewater will be provided for the duration of system maintenance and precipitation events. The dewatering system will include a storage capacity sufficient for 48 hours of mine dewatering at rates of up to 25 gpm (72,000 gallons total), in the event of a sustained rain event where evaporation would not be sufficient or the pit is flooded. Mine water will be stored in storage tanks onsite and will not be sprayed on the pit highwall during non-evaporative times or precipitation events.

Potentially Significant Water Quality Impact and Mitigation Measure No. 2

The decline (tunnel) will be mined using mechanical and/or drill and blast methods. Dry and wet waste rock are expected to be removed from the decline and temporarily spread on the top of a compacted engineered fill pad designed to allow any free water contained in the rock to drain.

Oxidation of minerals in the waste rock while exposed to the atmosphere can result in their conversion to a more soluble mineral form. Increased solubility of the minerals could result in byproducts and explosive residues can coat the surface of the waste rock. These residues can be remobilized from the waste rock pile by water, which can dissolve nitrates and other compounds and carry them into the environment. The following BMPs will be implemented during the production and storage of waste rock.

Waste Rock BMPs:

1. Waste rock generated during blasting will be removed from the mine as quickly as possible after blasting to prevent further buildup of blasting compounds on the waste rock surfaces as more blasting is completed.
2. Wet waste rock mined from below the water table may produce small quantities of leachate after it is removed from the decline. The waste rock will be placed on an engineered fill pad built using soils excavated from the bottom of the pit. Any water that may be present within the waste rock will be allowed to infiltrate into the underlying backfill.

3. The waste rock pile will be located at an elevation above the anticipated elevation of water that may pond in the pit bottom during a 100-year, 24-hour long storm, surrounded by berms and diversion ditches to prevent surface water runoff from flowing into or out of the rock piles.
4. During precipitation events and prolonged stops in mining operations, the waste rock pile will be covered with plastic and secured with sandbags. This will prevent rainfall infiltration into the rock pile.
5. The waste rock will be reused as quickly as possible as cemented backfill and mine support materials in the decline. The waste rock will be mixed with cement and a calcium-carbonate based additive (lime, fly ash, etc.) before it is re-used, so that the acid producing potential of the waste rock backfill will be neutralized and will have as little interconnected pore space for transmission of water through the cemented backfill as practicable.
6. All of the waste rock will be reused as cemented backfill. No waste rock will be left on the floor of the pit at the completion of mining.

Potentially Significant Water Quality Impact and Mitigation Measure No. 3

Rock assayed as containing elevated gold concentrations will be designated as ore rock and will be stored separately from the waste rock, on a concrete slab located in the pit bottom. The following BMPs will be employed for the temporary ore rock storage.

Ore Rock BMPs:

1. Rock generated during blasting will be removed from the mine as quickly as possible after blasting to prevent further buildup of blasting compounds on the rock surfaces as more blasting is completed.
2. Ore rock will be stored on a 35 foot wide by 40 foot long concrete storage pad (separate from the waste rock pile) constructed on the pit floor above the backfill material, at an elevation above the anticipated elevation of water that may pond in the pit bottom during a 100-year, 24-hour long storm. The pad will be surrounded by berms and diversion ditches to prevent surface water from flowing into the rock pile. The pad will be located above the backfill material in the pit.
3. During sporadic rainstorms and any stops in the mining operations, the ore rock pile will be covered with plastic and secured with sandbags. This BMP will prevent infiltration into the rock pile and runoff from the ore rock pile.
4. Ore rock will be stored onsite for a short period of time (few days) before it is trucked to a mill in Nevada for processing.

Potentially Significant Water Quality Impact and Mitigation Measure No. 4

The mining operation will expose wall rock and ore material to oxygen both underground and within the ore and waste rock piles. As mines re-flood at the end of mining, sulfide minerals, primarily pyrite, in the rocks can react with the oxygen and water creating sulfate from the sulfide minerals and liberating hydrogen ions. This condition can result in the formation of acidic water, or acid mine drainage (AMD), that is often high in dissolved solids including sulfate and metals. The following BMPS will be implemented to prevent generation of acid mine drainage.

Acid Mine Drainage BMPs:

1. As mining progresses below the water table, dewatering will be implemented continuously so that groundwater is not allowed to refill the mine workings and mobilize any newly-formed and/or oxidized sulfide minerals
2. The waste and ore rock piles in the Shumake Pit will be covered with plastic sheeting during precipitation events, and diversion berms and ditches will be constructed around the waste rock pile and the ore rock pile to prevent stormwater from flowing into the rock piles. These simple BMPs will minimize and/or prevent the formation of AMD within ore and waste rock piles. In addition, because of its short on-site residence time, the ore rock pile is not expected to be a significant source of AMD.
3. The mine workings will be backfilled with a combination of waste rock and cement to reduce the production of AMD due to the neutralizing potential of the calcium carbonate in the cement. A mine backfill plan shall be developed and implemented after collecting representative rock samples and performing acid-base accounting analyses to determine the amount of calcium carbonate necessary to neutralize the acid generating potential of the rock.

Potentially Significant Water Quality Impact and Mitigation Measure No. 5

BMPs will be employed to protect groundwater quality during underground blasting operations. Blasting byproducts can include nitrates, nitrites, ammonium, and perchlorate. The following BMPs shall be implemented to minimize groundwater contamination from blasting operations.

Blasting Operations BMPs:

1. Selection of explosives that minimize the potential amount of nitrogen released. If groundwater is present in the blasting area, explosives that are water resistant will be used to prevent groundwater contamination. This BMP may be the single most important and cost-effective measure to prevent potential groundwater contamination from explosives. Ammonium nitrate fuel oil (ANFO), although commonly used for blasting, will be avoided because it has no water resistance and quickly absorbs water, allowing ammonium and nitrate to leach into groundwater from the blast holes. ANFO will not be used in any blast holes containing water. Gelatin dynamite, watergel explosives or emulsion explosives are designed for use in wet blast holes due to their water resistance and will be used where wet conditions are encountered in the decline.
2. Explosives stored at the mine site will be stored in a United States Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATF) Type 1, Typ2, or Type 4 magazine with an impervious floor and secondary containment structures, as required.
3. Any spilled explosives or waste associated with explosives will be cleaned up immediately and disposed of according to BATF or California OSHA requirements.
4. Explosives loading equipment will be cleaned on a concrete pad or plastic lined surface that allows containment of the water used to clean the equipment.

5. Explosives loaded into blast holes in the mine will not be allowed to remain in the blast holes overnight. All explosives will be detonated as soon as practicable after loading.
6. Drill cuttings piles/muck piles will be removed from the decline prior to explosives loading and detonation to minimize contamination of waste rock during blasting.
7. Spill control and prevention methods will be used during explosives handling (e.g., drip pans, funnels). Transfers of explosives will be done over impervious surfaces that can be cleaned as needed.

Potentially Significant Water Quality Impact and Mitigation Measure No. 6

To not be considered a discharge of wastewater, dust suppression operations must not allow the wastewater to pond or run off. The following BMP shall be implemented for dust suppression operations.

Dust Suppression BMP:

1. Dust suppression operations will stop if runoff or ponded water is observed and will not resume until the sediment has become dry again.

Potentially Significant Water Quality Impact and Mitigation Measure No. 7

Solids will likely be generated at the bottom of the groundwater storage tanks and periodically will need to be cleaned out. The following BMP will be implemented to prevent the settled solids from potentially spreading contamination.

Settleable Solids BMP:

1. Settled solids from storage tanks must be transferred to the waste rock pile and become part of the waste rock stream for use as mine backfill.

Potentially Significant Water Quality Impact and Mitigation Measure No. 8

Municipal waste/trash, equipment maintenance wastes, construction debris, and portable toilet wastes will be generated onsite. The following BMP will be implemented to manage construction wastes.

Facility Waste BMP:

1. Municipal waste/trash, equipment maintenance wastes, construction debris, and portable toilet wastes will be containerized or covered as appropriate onsite until they are transported and properly disposed offsite. The BMPs shall be designed so that these wastes cannot be blown offsite by wind, become accessible to birds or other animals, or be discharged to the ground.

Implementation of the mitigation measures described above will reduce potentially significant impacts to water quality to less than significant. The above-cited mitigation measures are required by Order No. II.B.

The Water Board will file a Notice of Determination within five days from the issuance of this Order.

22. Other Considerations and Requirements for Discharge

Pursuant to California Water Code section 13241, the requirements of this Order take into consideration:

- a. Past, present, and probable future beneficial uses of water. This Order identifies past, present, and probable future beneficial uses of water. The only designated beneficial use for the groundwater in the Middle Buttes area is MUN. The proposed discharge will not adversely affect present or probable future beneficial uses of water because the discharge is of better water quality when compared with background conditions. Receiving water limits are described in Discharge Specification No. I.B. of this Order. These limits are specified to prohibit water quality degradation due to the proposed discharge.
- b. Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto. Findings 11 and 18 describe the environmental characteristics and quality of groundwater in the project area. The area is a historic mining area with poor quality groundwater. Groundwater at the project site would require costly treatment to be suitable for the designated beneficial use of municipal and domestic water supply. Groundwater at the project site occurs in a “no flow zone” and is partially isolated from downgradient groundwater by a fault.
- c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area. The requirements of this Order will result in the maintenance of existing groundwater quality and, for the constituents of concern, groundwater quality will likely be improved locally at the point of discharge due to mixing of better quality discharge water with the poorer quality water beneath Shumake Pit.
- d. Economic Considerations. This Order regulates the operation and future closure of the Discharger’s proposed mine. The potential revenue to be derived from the mining operation are proprietary, but can be considered to be substantial enough to be profitable or the Discharger would not propose the project. The Water Quality Objectives established in the Basin Plan do not subject the Discharger to economic disadvantage as compared to other similar discharges in the Region. This Order requires the Discharger to monitor and maintain water quality at a reasonable cost. This Order also requires the Discharger to operate the project and submit documentation in compliance with the waste discharge requirements.
- e. The need for developing housing within the region. The area surrounding the project site is sparsely populated. The Discharger is not responsible for developing housing within the region.

- f. The need to develop and use recycled water. Prior to implementing the proposed project, there is no on-site source of recycled water available to the Discharger. To the extent practicable, Blue Eagle Lode Mine dewatering wastewater will be recycled for dust control. The Discharger is encouraged to identify alternative recycled water uses for which the mine dewatering wastewater may be suitable and present recycled water proposals to the Water Board for consideration.

23. Waste Rock Volume and Processing

Waste rock produced during the development of the decline will be discharged for storage to the waste rock waste management unit (WMU). The Discharger anticipates that up to 2,644 cubic yards (5,100 tons) of waste rock will be temporarily stored during development of the mine tunnel.

The Discharger stated waste rock will be temporarily stored in the WMU before being admixed with cement, and returned underground to support the mined openings, and as backfill. All of the generated waste rock will be returned to the underground mine as backfill. This Order requires the Discharger to develop a backfill plan to demonstrate the waste rock will be mixed with sufficient cement to neutralize the waste rock's acid generating potential prior to returning the material to the mine workings.

24. Mining Waste Classification

California Code of Regulations, title 27, section 22480 requires mining waste be classified as Group A, Group B, or Group C waste based on an assessment of the potential risk of water quality degradation posed by the waste. The ROWD supplied chemical characterization of rock samples taken from the Shumake Pit during mining in the 1990s. Based on these samples, the Water Board considers the waste rock to be classified as a Group B mining waste.

As described in the ROWD, waste rock piles such as those planned at the Blue Eagle Lode Mine have the capacity to produce acid mine drainage. The waste rock is considered a Group B mining waste due to potential for acidification and the potential to release soluble materials with or without acidification. In addition, the waste rock could contain soluble residues from explosives used during blasting operations.

25. Waste Management Unit (WMU)

The Discharger has proposed to store waste rock on a graded pad constructed of local material (Attachment E - Waste Rock Pile and Infiltration Areas).

The Discharger proposed BMPs to prevent the formation of leachate and has designed a drying pad for the excavated rock that includes a bermed area to prevent any surface water runoff from contacting the waste rock pile. The Discharger is also required by this Order to prepare and implement a Pollution Prevention Plan detailing the BMPs for stormwater controls and the mining operations.

26. Title 27 CCR Exemption for Mining Unit Based on No/Little/Poor Groundwater

Pursuant to California Code of Regulations, title 27, section 22470(c), the Water Board can exempt a Group A or B Mining Unit from certain provisions of this article if a comprehensive hydrogeologic investigation demonstrates that:

1. *there are only very minor amounts of groundwater underlying the area; or*
2. *the discharge is in compliance with the applicable water quality control plan; and*
3. *either natural conditions or containment structures will prevent lateral hydraulic interconnection with natural geologic materials containing groundwater suitable for agriculture, domestic or municipal beneficial uses. There is no detectable vertical hydraulic interconnection between the natural geologic materials underlying the Unit and natural geologic materials containing such groundwater.*

Pursuant to this exemption, the Water Board can relieve the Discharger of requirements for liners and leachate collection and removal systems required by title 27. However, the Discharger shall comply with the requirements of this article relative to siting, precipitation and drainage controls, and surface water quality monitoring. Closure and post closure periods shall be designed to protect surface water quality. Groundwater monitoring, and unsaturated zone monitoring as feasible, shall be conducted during the active life, closure, and post closure maintenance period to verify that the Unit is not affecting groundwater suitable for agricultural, domestic, or municipal beneficial uses. Unsaturated zone monitoring is not considered feasible since chemical constituents in moist waste rock is expected to be similar to chemical constituents in the unsaturated zone as similar waste rock was used to backfill the bottom of the Shumake Pit.

The Discharger has provided maps and data that show the project area is in an area considered by the California Department of Water Resources to be a "no flow" zone in between two groundwater basins. The proposed discharge is in compliance with the Basin Plan. Furthermore, the Silver Prince fault on the western boundary of Shumake Pit has been shown to be a natural barrier to flow between the poor groundwater beneath Shumake Pit and the nearest supply wells, as evidenced by a change in groundwater elevation of 95 feet across the fault. The Water Board finds the evidence demonstrates that there is little groundwater underlying the area, the groundwater that exists beneath Shumake Pit is of poor quality, and the Silver Prince fault provides a natural barrier to flow along the western boundary of Shumake Pit. Therefore, the discharge of mining waste that is the subject of this Order meets or exceeds the conditions for exemption for certain provisions of title 27. This Order requires groundwater monitoring to verify that water suitable for agricultural, domestic or municipal uses are not affected by the proposed discharges.

27. Shut down Periods

The ROWD indicates temporary shut periods may occur during the life of the mine. This Order requires the Discharger to develop a plan for Executive Officer acceptance to describe how the Discharger will temporarily shut down site operations, facilities, and equipment. Water quality monitoring will continue during temporary shutdown periods.

28. Compliance Period

The compliance period for the Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program.

29. Closure of WMU

The Discharger proposed in the ROWD to clean close the WMU by using the waste rock as backfill in the underground mine workings. This Order requires the Discharger to prepare and implement a final closure plan upon acceptance by the Executive Officer.

30. Mine Closure

At the end of the mine's life, the Discharger proposes to return all waste rock to the underground workings, cease dewatering, and allow the groundwater to rise to its natural level and flood the underground workings. The portal will be sealed to prevent unauthorized entry. Reclamation of the aboveground facilities will be administered through Kern County. This Order requires the Discharger to submit a closure Report to document the completion of closure activities.

31. Reasonably Foreseeable Release

This Order requires the Discharger to provide financial assurance for remediation of a reasonably foreseeable release. This Order requires the Discharger to prepare: (a) a plan for initiating and completing corrective action for a known or reasonably foreseeable release from the Facility; and (b) lump sum estimate of the costs to carry out the actions necessary to perform the corrective action. The plan must be acceptable to the Executive Officer.

32. Financial Assurances

This Order requires proof of financial assurances be submitted annually to Water Board staff, along with updated cost estimates. The Discharger shall maintain adequate funding to pay the costs of closure and post-closure maintenance, and remediation of a reasonably foreseeable release. Financial Assurance will be maintained until WDRs are rescinded. Dollar amount and type of financial instrument must be approved by the Executive Officer.

The reasonably foreseeable release financial assurance instrument applies to releases from the WMU and for potential restoration of groundwater quality.

The closure financial assurance instrument applies to closure of the WMU, infiltration gallery, spray evaporation area, and groundwater monitoring network.

The re-grading and reclamation of the Schumake Pit bottom area are addressed in the Surface Mining and Reclamation Act Bond administered by Kern County and California Office of Mine Reclamation. There may be some overlap between state and local requirements for closure, and a single financial assurance instrument for closure may be

used, providing the Water Board is also named as a potential payee and the instrument covers the activities and costs in the Closure Plan approved by the Executive Officer.

33. Right to Petition

Any person aggrieved by this action of the Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320, and California Code of Regulations, title 23, sections 2050 et seq. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at the link below or will be provided upon request:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

34. Notification of Interested Parties

The Water Board has notified the Discharger and all known interested agencies and persons of its intent to adopt WDRs for this project.

35. Consideration of Interested Parties

Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED pursuant to sections 13263 and 13267 of the California Water Code, that Blue Eagle Lode Mining Company and the Property Owner (Clifford G. and Alice Burton Trust) their agents, successors and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations thereunder, shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Effluent/Discharge Limitations

Numerical effluent limitations listed below are based on background concentrations, best practicable treatment and control technologies, and water quality goals as described in Finding No. 18. A sufficient number of samples must be collected and analyzed to demonstrate compliance with these effluent limitations.

Inorganic Constituents

Any detected concentration above a daily maximum limitation or average mean value determined to be above the annual mean limitation listed below is a violation of this Order.

Table 3: Inorganic Constituent Effluent Limitations

Constituent	MCL	Annual Mean Effluent Discharge Limitation	Daily Maximum Effluent Discharge Limitation
		mg/L	
Al	0.2	140	260
As	0.01	140	490
Be	0.004	0.01	0.03
Cd	0.005	0.17	0.5
Cu	1.3	5.3	18
F	2	1.2	2.6
Fe	0.3	250	670
Ni	0.1	0.3	0.6
Pb	0.015	0.016	0.035
Se	0.05	0.06	0.15
Sb	0.006	0.09	0.24
Ti	0.002	0.041	0.1
Zn	5	7.6	13
NO ₂	1	7	21
NO ₃ *	10	7	21
NO ₂ + NO ₃	10	7.5	22.5
SO ₄	250	2100	3100
TDS	1000	3325	5400

Hydrogen Ion

Any detected pH measurement above a maximum limitation or below a minimum limitation listed below is a violation of this Order.

Table 4: Hydrogen Ion Effluent Limitations

Parameter	MCL	Annual Mean Effluent Discharge Limitation	Daily Minimum and Maximum Effluent Discharge Limitation
pH	6.0<pH<9.0	3.0<pH<9.0	3.0<pH<9.0

Organic Constituents

The following effluent limits for organic constituents are based on water quality goals and concentrations achievable with best practical treatment or control technologies. The 5-Year Median limit applies to a running five year period. The median value for any five-year period should not exceed the 5-Year Median Limitation or Daily Maximum Limitation. The discharge of an effluent in excess of the limitations in Table 5 is a violation of this Order.

Table 5: Organic Constituent Effluent Limitations

Organic Constituents	Water Quality Goals (µg/L)	5-Year Median (µg/L)	Daily Maximum (µg/L)
Total Petroleum Hydrocarbons (C ₄ -C ₁₂)	50	<50	100
Total Petroleum Hydrocarbons (C ₈ -C ₄₄)	100	<100	200
Ethylene Glycol	14,000	<7,000	<14,000
Benzene	1	<0.5	1
Toluene	42	<21	42
Ethyl benzene	29	<14.5	29
Total Xylenes	17	<8.5	17
HMX	350	<350	400
RDX	0.3	<0.3	2
1,3,5,-TNB	210	<105	210
1,3-DNB	0.7	<0.7	1
NG	5	<3	5
NB	14	<7	14
2,4,6-TNT	1	<1	2
2,4-DNT	14	<7	14
2,6-DNT	0.5	<0.3	0.5
2-NT	80	<40	80
3-NT	80	<40	80
4-NT	80	<40	80

B. Receiving Groundwater Limitations

The discharge shall not cause the presence of the following substances or conditions in groundwater of the Antelope Valley or Willow Springs Hydrologic Areas.

1. Bacteria – Waters shall not contain concentrations of coliform organisms attributable to human wastes. The median concentration of coliform organisms, over any seven-day period, shall be less than 1.1/100 ml in groundwater.
2. Chemical Constituents – Groundwater designated as Municipal and Domestic Supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in California Code of Regulations, title 22: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64431-B of section 64431 (Fluoride), Table 64444-A of section 64444 (Organic Chemicals), Table 64449-A of section 64449 (Secondary Maximum Contaminant Levels – Consumer Acceptance Limits), and Table 64449-B of section 64449 (Secondary Maximum Contaminant Levels – Ranges).

Specific receiving groundwater limitations for COCs potentially introduced during the mine dewatering and discharge process are:

- Waters designated for agricultural supply shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).
 - Waters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
 - The discharge shall not cause the receiving water at the points of compliance surrounding Shumake Pit to have concentrations of COCs greater than the average and maximum pre-project concentrations to be determined with eight independent sampling events prior to any discharge.
3. Radioactivity – Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, or that results in the accumulation of radionuclides in the food chain to an extent that it presents a hazard to human, plant, animal, or aquatic life. Waters shall not contain concentrations of radionuclides in excess of limits specified in the California Code of Regulations, title 22, section 64443.
 4. Taste and Odors – Groundwater shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For groundwater designated as MUN, at a minimum, concentrations shall not exceed adopted SMCLs specified in Table 64449-A of section 64449 (SMCLS – Acceptance Limits), and Table 64449-B of section 64449 (SMCLs – Ranges) of title 22 of the California Code of Regulations, including future changes as the changes take effect.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. Mine dewatering wastewater shall not be discharged directly to surface waters of the State or waters of the United States.
2. The only authorized disposal areas for the mine dewatering wastewater are the infiltration galleries and high walls of Shumake Pit identified in Attachments “E” and “G” of this Order.
3. The only authorized disposal areas for waste rock are the waste rock area identified in Attachment “E” of this Order and the underground mine workings.
4. The discharge of waste shall only be to authorized disposal areas.
5. The discharge of waste in violation of any narrative Water Quality Objective contained in the Basin Plan is prohibited.

6. Where any numeric or narrative Water Quality Objective contained in the Basin Plan is already being violated, the discharge of waste that causes further degradation or pollution is prohibited.
7. The discharge of waste that causes a violation of any numeric Water Quality Objective contained in the Basin Plan is prohibited.
8. Discharges from the Facility shall not cause a pollution, or a threatened pollution, as defined in section 13050 of the California Water Code.
9. The discharge shall not cause a nuisance as defined in section 13050 of the California Water Code.
10. The discharge of solid wastes, mine dewatering wastewater, or any other deleterious material to the Antelope Valley or Fremont Groundwater Basins is prohibited.
11. There shall be no discharge, bypass, or diversion of polluted wastewater, sludge, grease, oils, purge water, development water, or pump test water from the Facility to adjacent land areas or surface waters.
12. The Discharger shall comply with the Water Code, Division 7, Chapter 10 when installing and/or abandoning groundwater monitoring wells.

B. Specific

1. The Discharger shall develop and implement a Pollution Prevention Plan including, at a minimum, the BMPs identified as CEQA mitigation measures in Finding 21 and any additional stormwater BMPs necessary to prevent pollution of groundwater. These BMPs shall be described in detail in the Pollution Prevention Plan and submitted to the Executive Officer for approval prior to beginning mining operations. The Pollution Prevention Plan shall be an enforceable document pursuant to this Order.
2. During spray evaporation activities, application is prohibited when the authorized spray evaporation areas are moist or wet from precipitation and during precipitation events.
3. During spray evaporation activities, runoff or flow of applied wastewater between benches is prohibited.

III. PROVISIONS

A. Standard Provisions

The Discharger shall comply with the "Standard Provisions for WDRs," dated September 1, 1994, in Attachment "G," which is made part of this Order.

B. Monitoring and Reporting

1. Pursuant to Water Code section 13267(b), the Discharger shall comply with the attached Monitoring and Reporting Program (MRP) No. R6V-2014-(TENTATIVE) as specified by the Executive Officer pursuant to Section 13267 of the CWC. (Attachment "I")
2. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is made part of the MRP pursuant to this Order.

C. Title 27 Exemption for Wastewater Discharge to Land

The Water Board grants an exemption from the State Water Resources Control Board-promulgated provisions of California Code of Regulations, title 27, for wastewater discharges to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leach fields, providing that the discharges continue to meet the preconditions for exemption described in Finding 19.

D. Title 27 Exemption for Mining Unit Based on No/Little/Poor Groundwater

Based on Finding 26, the Water Board grants an exemption from provisions of the State Water Resources Control Board-promulgated provisions of title 27, California Code of Regulations, for the Mining Unit based on No/Little/Poor Groundwater. The requirements relative to siting, precipitation and drainage controls, and surface water quality monitoring shall be complied with and are not exempt. Groundwater monitoring shall be conducted during the active life, closure, and post closure maintenance period to verify that the Unit is not affecting groundwater suitable for agriculture, domestic, or municipal beneficial uses.

IV. TIME SCHEDULE

- A. **Within 3 months of the issue of this Order**, the Discharger shall submit a Sampling and Analysis Plan (SAP) for Executive Officer acceptance. The SAP shall describe proposed sampling and analysis to be conducted to characterize the effects of the project discharges on groundwater quality and provide the earliest possible alert of any potential water quality degradation. The Discharger shall propose the statistical analyses to be used to identify a measurably significant release. The SAP shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994.
- B. **Within 6 months of the issue of this Order**, the Discharger shall develop and submit a Pollution Prevention Plan for Executive Officer acceptance. The plan shall include provisions for the BMPs identified in Finding 21 as CEQA Mitigation Measures and any additional BMPs necessary to prevent groundwater quality degradation from interaction of stormwater with the waste management units and other mining operations and equipment.

- C. **Within 6 months of the issue of this Order**, the Discharger shall develop and submit a Temporary Shutdown Plan for Executive Officer acceptance. The plan shall include provisions for temporarily shutting down site operations, facilities, and equipment.
- D. **Prior to generating any waste rock**, the Discharger shall develop and submit the following plans for Executive Officer acceptance: (a) a plan for initiating and completing corrective action for a known or reasonably foreseeable release from the Facility; (b) a preliminary closure plan; and (c) a lump sum estimate of the costs to implement the two plans.
- E. **Prior to generating any waste rock and annually thereafter on or before January 30 of each year**, the Discharger shall submit proof of financial assurance and updated cost estimates for a reasonably foreseeable release from the Facility and Facility closure to Water Board staff for acceptance.
- F. **At least 90 days prior to returning waste rock material to the mine workings**, the Discharger shall develop and submit a Mine Backfill Plan for Executive Officer acceptance. The plan shall include provisions to demonstrate how waste rock will be mixed with sufficient cement and acid buffering material to neutralize the potential for waste rock to generate acid mine drainage. Upon acceptance, Discharger shall implement the plan.
- G. **At least 90 days prior to mine closure**, the Discharger shall prepare a Final Closure Plan for Executive Officer acceptance. The plan shall include provisions for clean closure of the site. Upon acceptance, Discharger shall implement the plan.
- H. **Within 90 days of completing mine closure**, the Discharger shall prepare a Final Closure Report for Executive Officer acceptance. The Report shall document the activities undertaken to close the site.

I, Patty Kouyoumdjian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on November 12, 2014.

PATTY KOUYOUMDJIAN
EXECUTIVE OFFICER

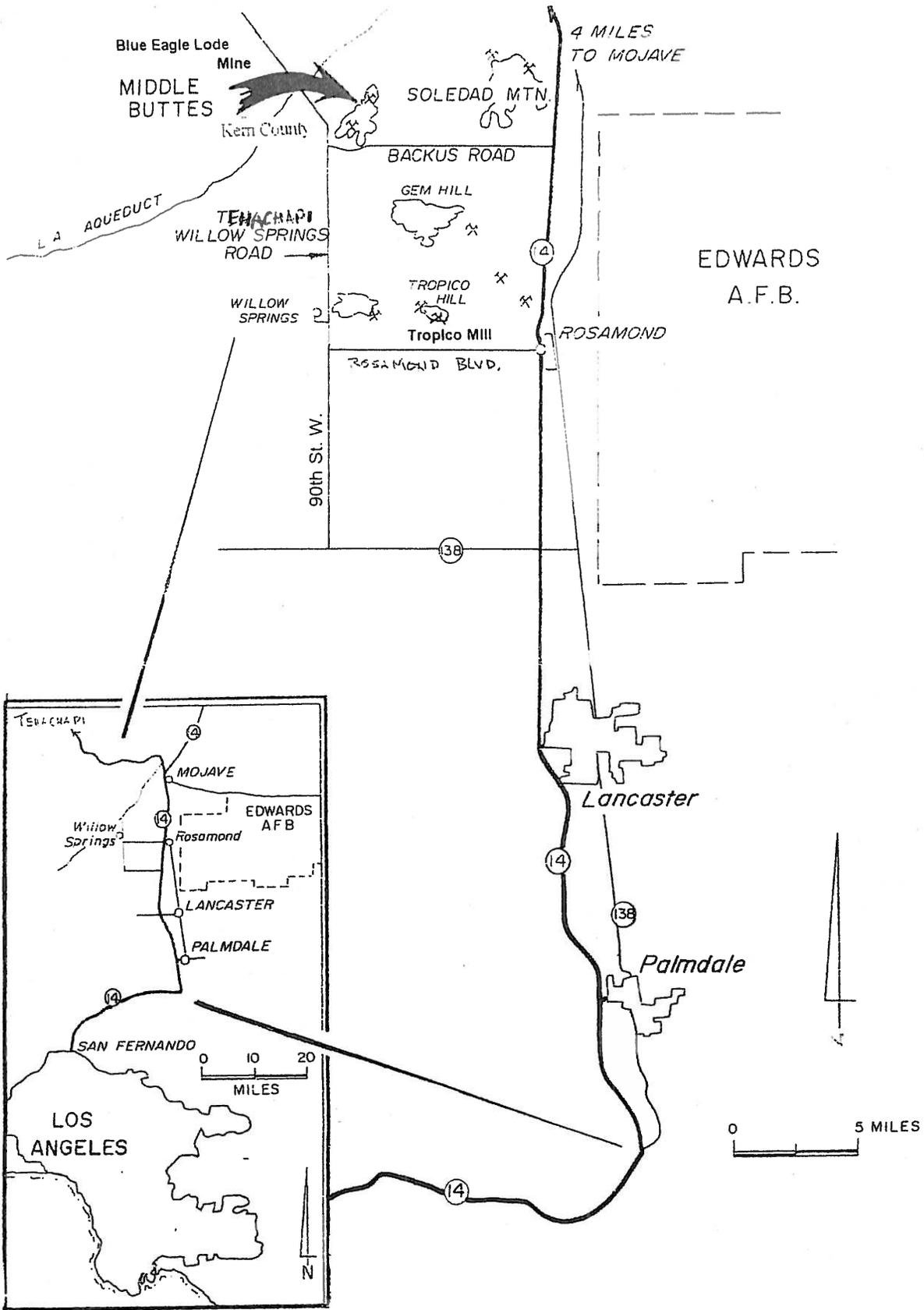
Attachments:

- A. Blue Eagle Lode Mine Site Location Map
- B. Site Map
- C. Cross-section of Shumake Pit
- D. DWR Groundwater Basins
- E. Waste Rock Pile and Infiltration Areas
- F. Cross-section of Shumake Pit Fill and Waste Rock Pile Areas
- G. Spray Evaporation and Dust Suppression Areas

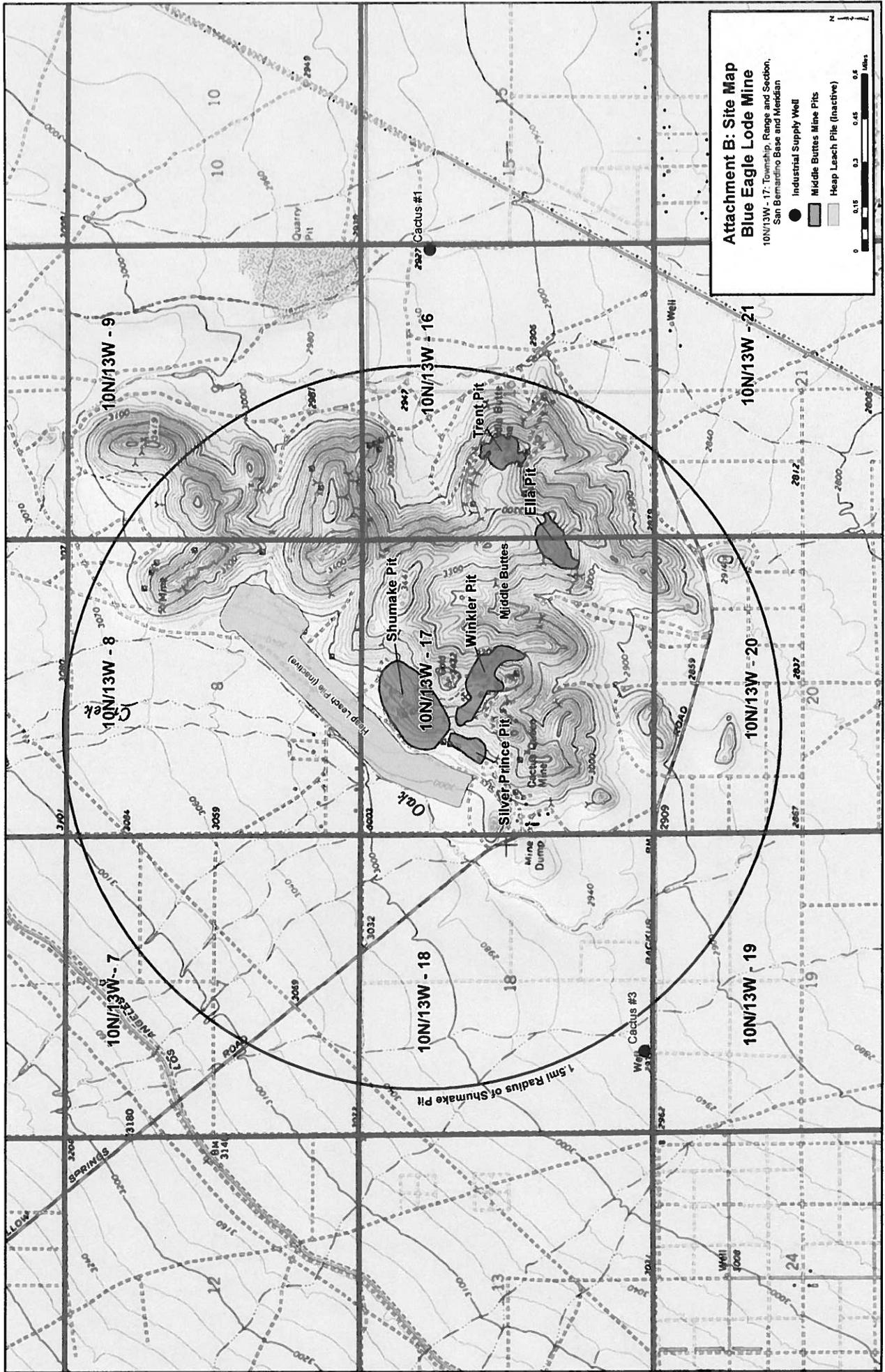
- H. Standard Provisions for WDRs
- I. MRP No. R6V-2014-(TENTATIVE)

TENTATIVE

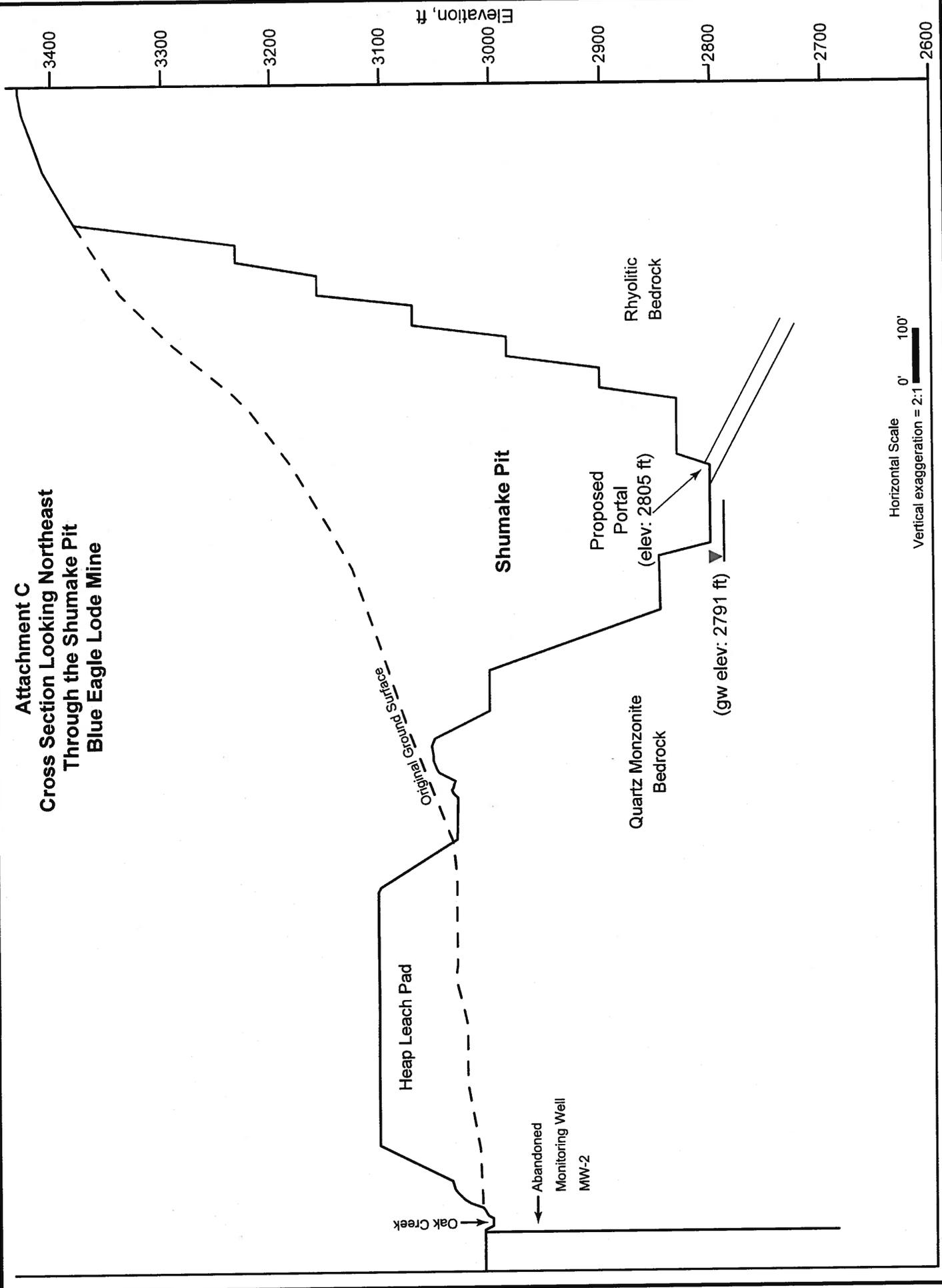
Attachment A: Blue Eagle Lode Mine Site Location

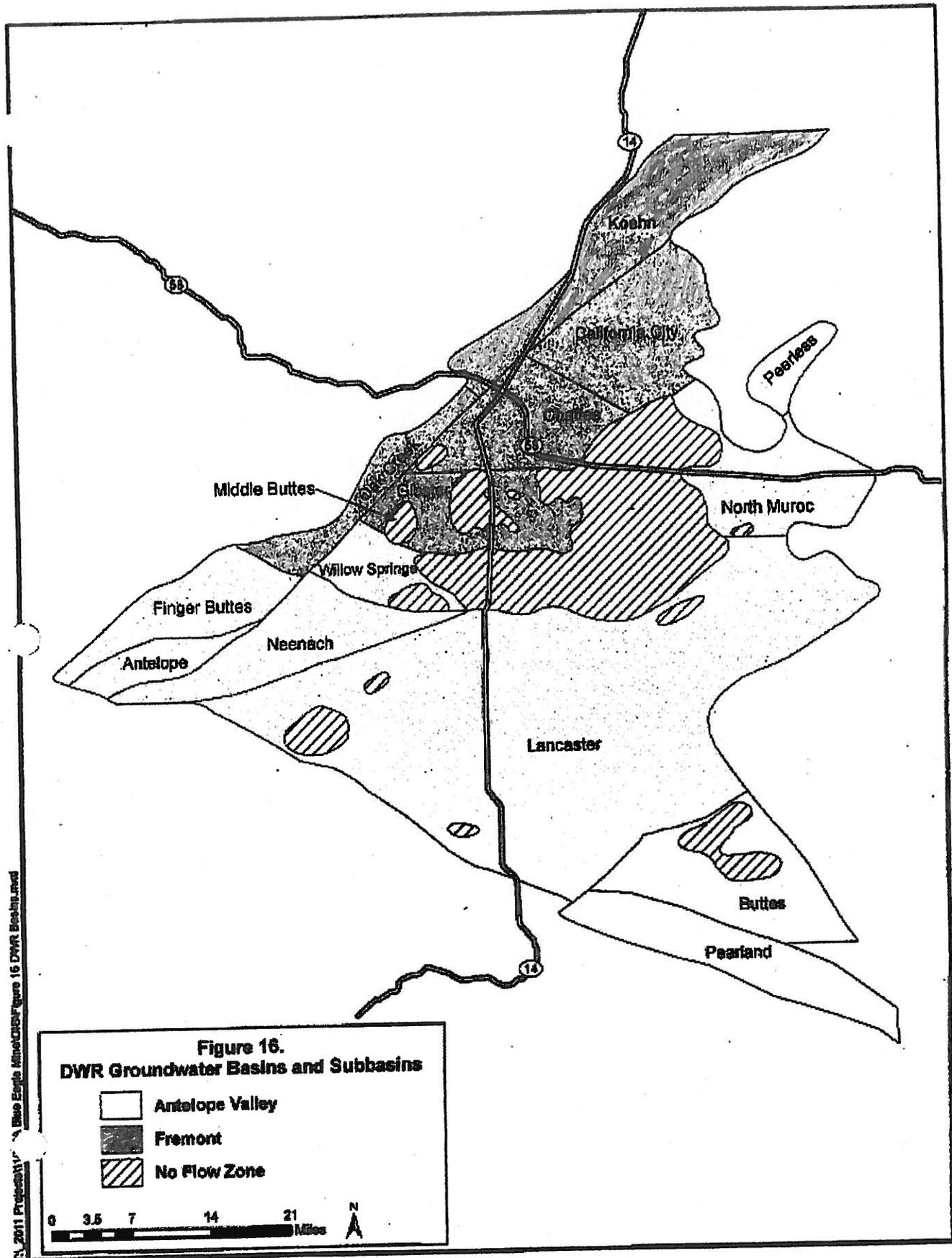


Blue Eagle Lode Mine
Middle Buttes, Kern County, California

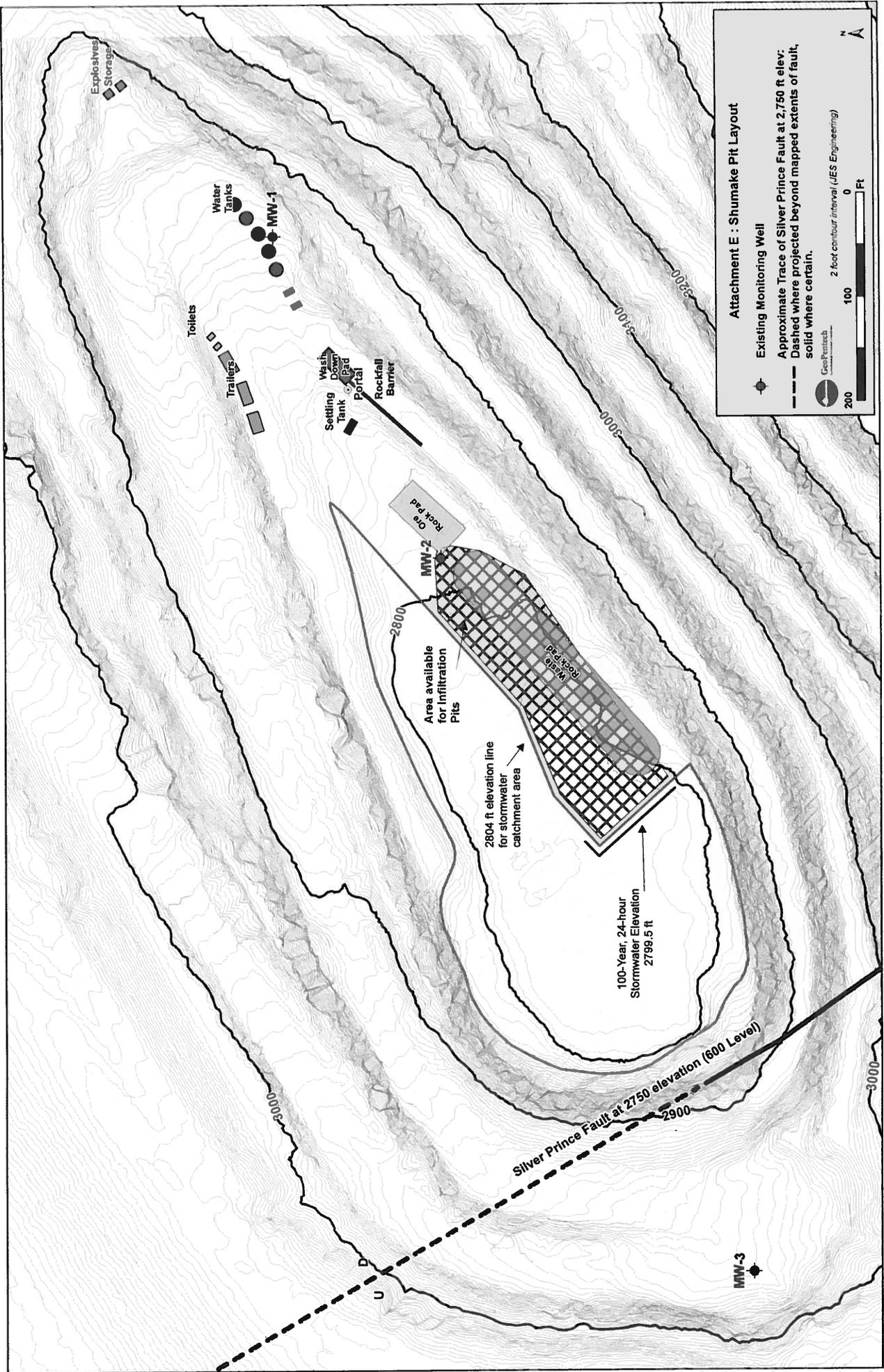


Attachment C
Cross Section Looking Northeast
Through the Shumake Pit
Blue Eagle Lode Mine

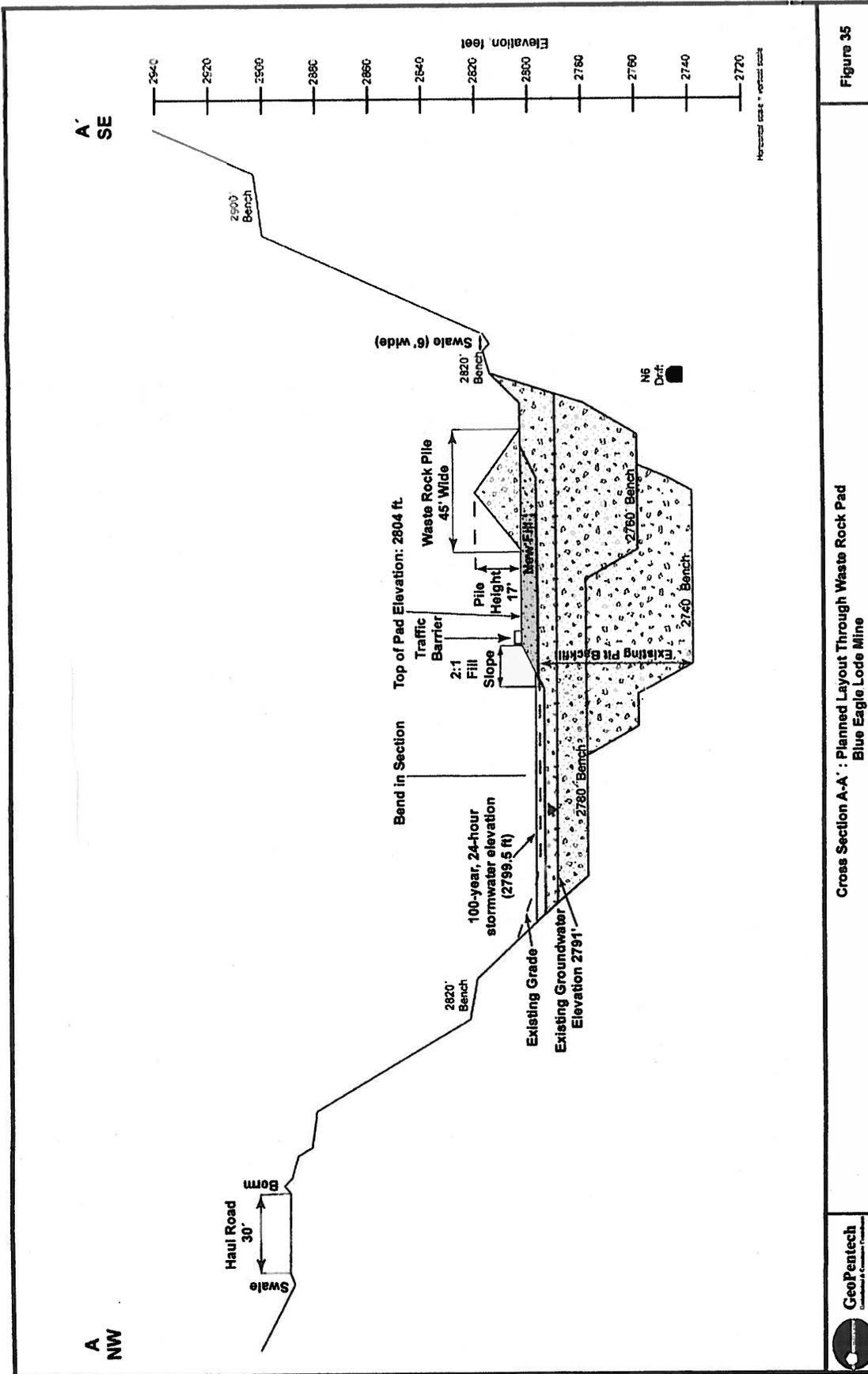


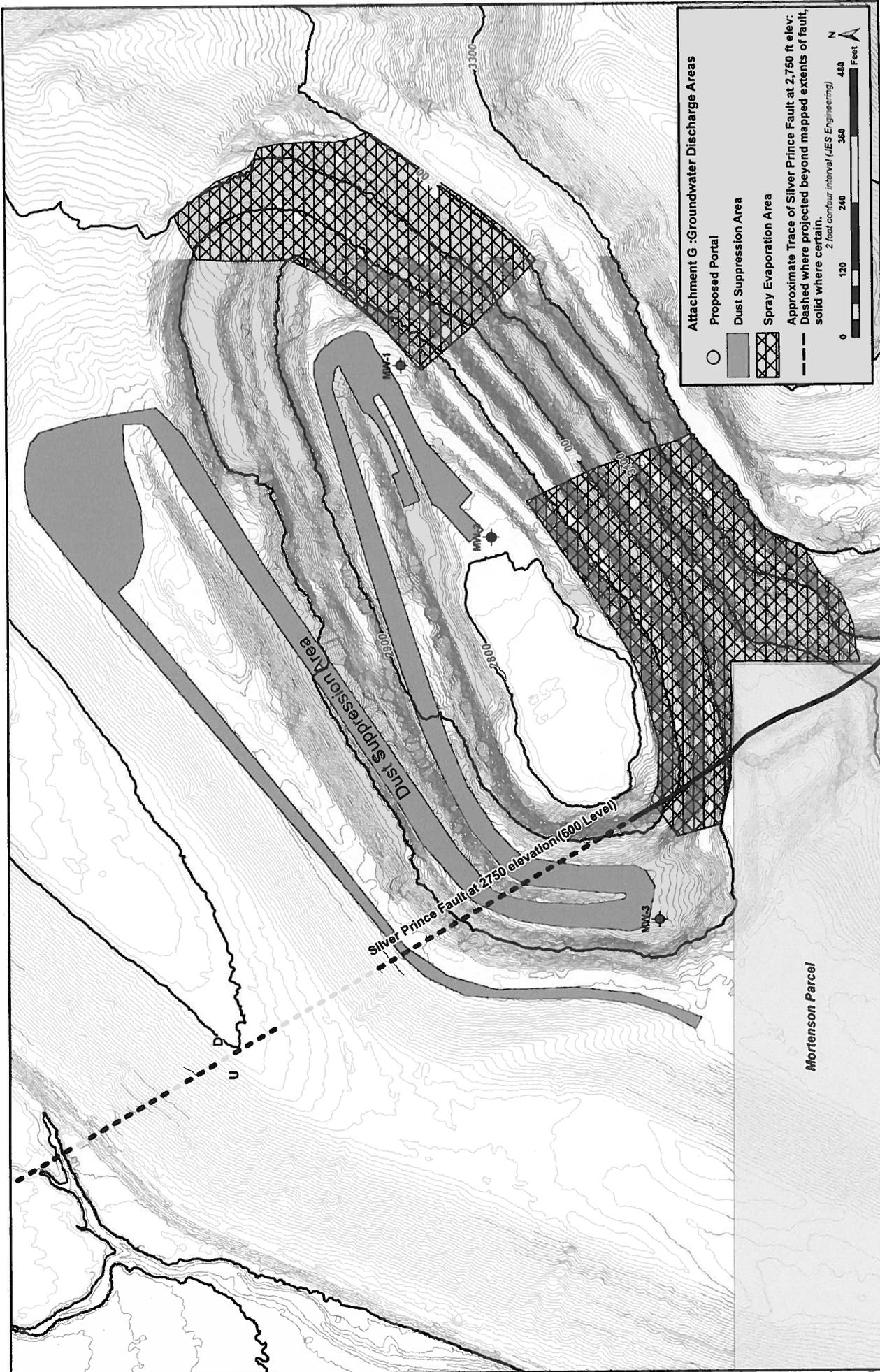


TS, 2011 Proposition 13 Blue Eagle Map/CIP/figure 16 DWR Basins.mxd



Attachment F: Cross Section of Shumake Pit Fill and Waste Rock Pile Areas





Attachment G : Groundwater Discharge Areas

- Proposed Portal
- Dust Suppression Area
- ▨ Spray Evaporation Area
- Approximate Trace of Silver Prince Fault at 2,750 ft elev. Dashed where projected beyond mapped extents of fault, solid where certain.

0 120 240 360 480 Feet

N

Mortenson Parcel

ATTACHMENT H

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

- a. to enter upon premises in which an effluent source is located or in which any required records are kept;
- b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);
- c. to inspect monitoring equipment or records; and
- d. to sample any discharge.

2. Reporting Requirements

- a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.
- b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.
- c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.
- d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

- e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation.
- f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

The Regional Board reserves the privilege of changing all or any portion of the WDRs upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the WDRs may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and re-issuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the WDRs which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the WDRs. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the WDRs.

7. Waste Discharge Requirement Actions

The WDRs may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and re-issuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the WDRs conditions.

8. Property Rights

The WDRs do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

9. Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the WDRs including imposition of civil liability or referral to the Attorney General.

10. Availability

A copy of the WDRs shall be kept and maintained by the Discharger and be available at all times to operating personnel.

11. Severability

Provisions of the WDRs are severable. If any provision of the requirements is found invalid, the remainder of the requirements shall not be affected.

12. Public Access

General public access shall be effectively excluded from treatment and disposal facilities.

13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operation. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

14. Definitions

- a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.
- b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

15. Storm Protection

All facilities used for collection, transport, treatment, storage, or disposal of waste

shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

x: PROVISIONS WDR (File: standard prov3)

ATTACHMENT I

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MONITORING AND REPORTING PROGRAM NO. R6V-2014-(TENTATIVE)
WDID NO. 6B151404003**

FOR

BLUE EAGLE LODGE MINE

Kern County

The following Monitoring and Reporting Program detail monitoring parameters and frequency. The frequency of the sampling or types of parameters analyzed may be reduced if the Discharger provides justification to the Executive Officer that such a reduction is warranted. Under certain adverse conditions, more frequent sampling is required if it is appropriate. An adverse condition is defined as any problem which could degrade water quality. Adverse conditions or other changes that may affect water quality must be reported to the Water Board within 48 hours.

I. BACKGROUND, STARTUP, AND FLOW MONITORING

A. Background Monitoring

Monitoring parameters are potential constituents of concern associated with current groundwater conditions in a historic mining area, potential constituents of concern associated with the proposed discharges, and basic information on groundwater hydraulics and chemistry, including general minerals, shall be determined prior to discharging mine dewatering effluent.

Prior to discharge of mine dewatering effluent, the Discharger shall conduct startup monitoring to establish baseline concentrations in the effluent and receiving water and to confirm that the facility will produce effluent that complies with standards prescribed in the Waste Discharge Requirements (WDRs).

Effluent Startup Monitoring

During startup monitoring, the Discharger shall direct the effluent to a temporary, impervious storage container. Startup monitoring shall be conducted until two consistent, consecutive sample results indicate system stability and compliance with the Order. Effluent that does not meet the Discharge Specifications for effluent shall not be discharged to land. At a minimum, the monitoring parameters shall include those listed in Tables 1, 2, and 3.

Receiving Water Background Monitoring

Prior to any wastewater discharge, the following inorganic constituents of concern and monitoring parameters shall be analyzed for a minimum of eight (8) independent sampling events, at least 21 days apart, to determine baseline conditions. At a minimum, the monitoring parameters shall include those listed in Tables 1, 2, 3, and 4.

Table 1: Inorganic Monitoring Parameters

Aluminum	Antimony
Arsenic	Titanium
Beryllium	Zinc
Cadmium	Ammonia
Cadmium	Nitrite
Copper	Nitrate
Fl	Perchlorate
Cadmiumuoride	Sulfate
Iron	Cyanide
Manganese	Mercury
Nickel	Total Dissolved Solids
Lead	pH
Selenium	

Major organic constituents from explosive and fuel sources that will be used during the project must be identified in a Sampling and Analysis Plan (SAP) and updated when changes occur. The SAP shall describe the major components of the explosives (e.g., TNT, ANFO) and the procedures for monitoring the potential presence of these compounds in wastewater and groundwater. Organic constituents shall be analyzed for a minimum of four (4) independent sampling events, at least 21 days apart, to determine baseline conditions prior to any discharge.

Table 2: Organic Monitoring Parameters

Total Petroleum Hydrocarbons (C ₄ -C ₁₂)	(TPH)
Total Petroleum Hydrocarbons (C ₈ -C ₄₄)	(TPH)
Ethylene Glycol	
Benzene, Toluene, Ethylbenzene, Xylene Naphthalene	(BTEX)
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	(HMX)
Hexahydro-1,3,5-trinitro-1,3,5-triazine	(RDX)
1,3,5-Trinitrobenzene	(1,3,5-TNB)
1,3-Dinitrobenzene	(1,3-DNB)
Nitrobenzene	(NB)
Nitroglycerine	(NG)
Pentaerythritol tetranitrate	(PETN)
2,4,6-Trinitrotoluene	(2,4,6-TNT)
2,4-Dinitrotoluene	(2,4-DNT)
2,6-Dinitrotoluene	(2,6-DNT)
2-Nitrotoluene	(2-NT)
3-Nitrotoluene	(3-NT)
4-Nitrotoluene	(4-NT)

Table 3: General Mineral Monitoring Parameters

Calcium	Bicarbonate
Magnesium	Carbonate
Sodium	Sulfate
Potassium	Chloride

B. Facility Flow Monitoring

The following information shall be recorded in a permanent log book:

1. The total volume, in gallons, of mine dewatering flow from the Facility underground workings for each day.
2. The total volume, in gallons, of mine dewatering flow to the effluent distribution facility for each month.
3. The average flow rate, in gallons per day, of wastewater to the disposal systems calculated each month.

4. The total volume, in gallons, of wastewater flow to the disposal systems for each month.
5. The wastewater disposal system non-operation time in hours of each non-operation period and in total hours of non-operation during the reporting period.

II. FACILITY EFFLUENT MONITORING

Effluent samples shall be collected after the last connection through which wastes can be admitted into the effluent discharge. Effluent samples should be representative of the volume and nature of the effluent. Time of collection of a grab sample shall be recorded. Specific constituents to be monitored and reporting limits shall be identified in the Sampling and Analysis Plan for the Facility which is to be submitted by the Discharger pursuant to the Order No. II.A. The frequency for effluent sampling shall be quarterly for all monitoring parameters except organic constituents. The frequency for effluent sampling for organic constituents shall be annual. At a minimum, the monitoring parameters shall include those listed in Tables 1, 2, and 3.

III. RECEIVING WATER MONITORING

Samples shall be collected from the proposed groundwater monitoring wells (Attachment A – Groundwater Monitoring Locations) quarterly and analyzed for the same parameters listed above for facility startup monitoring. In addition, the parameters listed below shall be determined each time wells are sampled and reported in tabular form. Include a map showing the water table contours. The frequency of receiving water monitoring shall be quarterly for inorganic constituents and monitoring parameters. The frequency of receiving water monitoring shall be quarterly for all monitoring parameters except organic constituents. The frequency for effluent sampling for organic constituents shall be annual. At a minimum, the monitoring parameters shall include those listed in Tables 1, 2, 3, and 4.

Table 4 - Groundwater Monitoring Parameters

<u>Parameter</u>	<u>Units</u>
Depth to groundwater	feet below ground surface
Electrical conductivity	micromhos/cm
pH	pH units
Temperature	degrees F or C
Turbidity	NTUs
Groundwater gradient	feet/foot
Groundwater direction	compass direction
Groundwater velocity	feet/day
Static water level	feet above mean sea level

IV. SURFACE WATER MONITORING

Whenever ponded water occurs in Shumake Pit due to precipitation events, wastewater discharges, or any other reason, the Discharger shall estimate the surface area of the ponded water, measure the depth of ponded water at its deepest point, and identify the dates ponded water was present. The data shall be recorded in a permanent log book and reported in annual monitoring reports. The presence of any animals or birds in the vicinity of ponded water must be noted.

Oak Creek does not need to be monitored because the elevation of Oak Creek is substantially higher than the bottom of Shumake Pit.

V. ANNUAL REPORTING

- A. The Discharger shall submit an annual report to the Water Board by the thirtieth (30th) of January of each year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the WDRs.
- B. Annual reports shall contain the following information in addition to what is required in the General Provision for Monitoring and Reporting (Attachment B).
 1. All data collected from the previous four quarters and trend graphs for constituents of concern, including background data for comparison.
 2. A map or aerial photograph showing the locations of monitoring wells in the receiving water program.
 3. Information on operation and maintenance of the Facility which may affect water quality, including changes in types of explosive compounds and other chemicals used on-site.
- C. In reporting the monitoring data, the Discharger shall arrange the data in tabular and/or graphical form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with WDRs. General minerals shall be plotted on Piper Diagrams and Stiff Patterns. The Discharger shall report all periods of non-operation.
- D. The Discharger shall implement the above monitoring program prior to any discharge of wastewater.

- E. This Monitoring and Reporting Program may be modified by the Executive Officer.

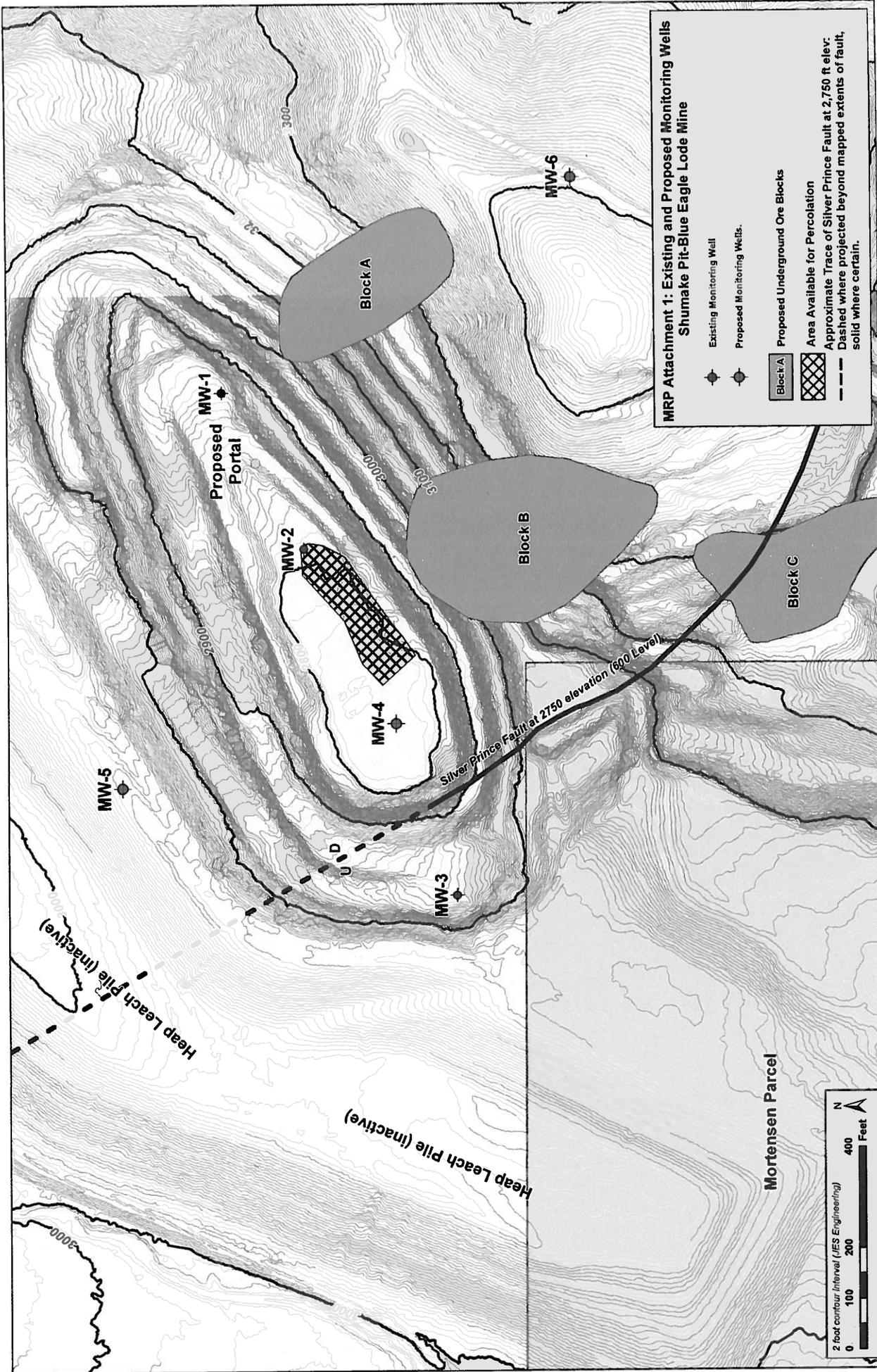
VI. INDIVIDUAL SITE PLANS

- A. Pursuant to Time Schedule Order No. IV.A., the Discharger shall develop and submit a Sampling and Analysis Plan (SAP) for Executive Officer acceptance **within 3 months of the issue of Order No. R6V-2014-(TENTATIVE).**
- B. Pursuant to Time Schedule Order No. IV.B., the Discharger shall develop and submit a Pollution Prevention Plan for Executive Officer acceptance **within 6 months of the issue of Order No. R6V-2014-(TENTATIVE).**
- C. Pursuant to Time Schedule Order No. IV.C., the Discharger shall develop and submit a Temporary Shutdown Plan for Executive Officer acceptance **within 6 months of the issue of Order No. R6V-2014-(TENTATIVE).**
- D. Pursuant to Time Schedule Order No. IV.D., the Discharger shall develop and submit a Corrective Action Plan and a Preliminary Closure Plan for Executive Officer acceptance **prior to generating any waste rock.**
- E. Pursuant to Time Schedule Order No. IV.E., the Discharger shall submit proof of financial assurance and updated cost estimates for a reasonably foreseeable release from the Facility and Facility closure to Water Board staff for acceptance **prior to generating any waste rock and annually thereafter.**
- F. Pursuant to Time Schedule Order No. IV.F., the Discharger shall develop and submit a Mine Backfill Plan for Executive Officer acceptance **at least 90 days prior to returning waste rock material to the mine workings.**
- G. Pursuant to Time Schedule Order No. IV.G., the Discharger shall prepare a final closure plan and submit the final closure plan for Executive Officer acceptance **at least 90 days prior to mine closure.**
- H. **Within 90 days of completing mine closure**, the Discharger shall prepare a Final Closure Report for Executive Officer acceptance. The Report shall document the activities undertaken to close the site.

Ordered by: _____
PATTY KOUYOUMDJIAN
EXECUTIVE OFFICER

Dated: _____

Attachment: 1. Groundwater Monitoring Locations
2. General Provisions for Monitoring and Reporting



**MRP Attachment 1: Existing and Proposed Monitoring Wells
Shumake Pit-Blue Eagle Lode Mine**

- Existing Monitoring Well
- Proposed Monitoring Wells
- Block A
- Area Available for Percolation
- Approximate Trace of Silver Prince Fault at 2,750 ft elev. Dashed where projected beyond mapped extents of fault, solid where certain.



ATTACHMENT 2

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

1. **SAMPLING AND ANALYSIS**

- a. All analyses shall be performed in accordance with the current edition(s) of the following documents:
 - i. Standard Methods for the Examination of Water and Wastewater
 - ii. Methods for Chemical Analysis of Water and Wastes, EPA
- b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.
- c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.
- d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

2. OPERATIONAL REQUIREMENTS**a. Sample Results**

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

- a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.
- b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.
- d. Monitoring reports shall be signed by:
 - i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;
 - ii. In the case of a partnership, by a general partner;
 - iii. In the case of a sole proprietorship, by the proprietor; or

- iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
- e. Monitoring reports are to include the following:
 - i. Name and telephone number of individual who can answer questions about the report.
 - ii. The Monitoring and Reporting Program Number.
 - iii. WDID Number.
- f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

x:PROVISIONS WDRS

file: general pro mrp