

CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD CENTRAL VALLEY REGION

ORDER R5-2018-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
BLUE LEAD GOLD MINING, LLC,
MINING, PROCESSING, AND RECLAMATION
BLUE LEAD GOLD MINE
NEVADA COUNTY

The California Regional Water Quality Control Board, Central Valley Region (“Central Valley Water Board” or “Board”) under the authority of the California Water Code and Title 27 of the California Code of Regulations (“Title 27”) finds that:

1. Blue Lead Gold Mining, LLC (facility owner, operator, and landowner), referred to as “Discharger”, proposes to construct and operate the Blue Lead Gold Mine (Facility) about 6 miles east of Nevada City as shown in Attachment A. The Facility is located in the Red Dog placer mining district, east of Greenhorn Creek and North of Missouri Canyon, and is in a portion of the eastern half of Section 25, Township 16 North, Range 9 East, Mount Diablo Base and Meridian and a portion of the western half of Section 30, Township 16 North, Range 10 East as shown in Attachment B.
2. The following documents are attached to this Order and hereby incorporated into and made part of this Order by reference:
 - a. Attachment A – Site Location Map
 - b. Attachment B – Site Topographic Map
 - c. Attachment C – Proposed Master Plan Map
 - d. Attachment D – Mine Drainage Map
 - e. Attachment E – Mine Features Map
 - f. Attachment F – Proposed Phase 1 Map with 1T Areas
 - g. Attachment G – Assessor Parcel Map
 - h. Attachment H – Information Sheet
 - i. February 2009 Standard Provisions and Reporting Requirements (SPRRs)
3. The Facility is comprised of three separate parcels, Nevada County Assessor’s Parcel Numbers (APN) 38-390-12, 38-390-20, and 38-390-21 which total 74.09-acres and are located at 18272 Red Dog Road, Nevada County, California as shown in Attachment G.
4. On 13 June 2017, the Discharger submitted a Report of Waste Discharge (ROWD) for proposed mining, processing, and discharge activities at the facility. Central Valley Water Board staff provided preliminary comments on the June 2017 ROWD and met with the Discharger’s representatives in August 2017 to discuss the ROWD and staff’s comments. Based on those discussions, a revised ROWD was submitted on 12 October 2017. Regional Board staff provided additional comments on the revised ROWD and notified the Discharger that the ROWD was complete in a 9 November 2017 letter.
5. Information in the Dischargers ROWD has been used to develop these Waste Discharge

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Requirements (WDRs). The ROWD and supporting documents contain information related to waste characterization, construction, operations, closure, and reclamation of the Facility. No prior WDRs have been issued for this Facility.

MINING WASTE

6. The Discharger's ROWD states that mining activities at the Facility will involve mining approximately 65 acres of the Tertiary gravel deposit, totaling an estimated 4.5 million cubic yards of mineable material as shown in Attachment C. The proposed mining and processing activities include crushing, screening, washing, stockpiling, and ultimately discharging to land of all mined and processed materials. Extraction, beneficiation, and processing of the gravel deposit will create mining waste.

Water Code, section 13050(q)(1) defines mining waste as follows;

(q) (1) "Mining waste" means all solid, semisolid, and liquid waste materials from the extraction, beneficiation, and processing of ores and minerals. Mining waste includes, but is not limited to, soil, waste rock, and overburden, as defined in Section 2732 of the Public Resources Code, and tailings, slag, and other processed waste materials, including cementitious materials that are managed at the cement manufacturing facility where the materials were generated.

7. Title 27 Mining Waste Management Regulations (Cal. Code Regs., tit. 27, § 22470 et seq.) apply to all discharges of mining wastes and to owners/operators of a waste management unit (or Mining Unit) for the treatment, storage, or disposal of mining waste.¹ The Mining Waste Management Regulations further define "mining waste" as "waste from the mining and processing of ores and mineral commodities. Mining waste includes: (1) overburden; (2) natural geologic material which have been removed or relocated but have not been processed (waste rock); and (3) the solid residues, sludges, and liquids from the processing of ores and mineral commodities." Cal. Code Regs., tit. 27, § 22480(a). Based on the description of the proposed activities in the ROWD, the Central Valley Water Board finds that Blue Lead Gold Mine LLC is proposing to discharge mining waste, which is appropriately regulated under the Title 27 Mining Waste Management Regulations.

HISTORIC SITE DESCRIPTION

8. The Facility is part of the Red Dog Mining District which was the site of large-scale hydraulic mining from 1855 through the early 1880s. Gravel deposits containing gold were washed from the pit walls using high pressure water and gold-bearing fines were captured using various gravity separation techniques.
9. Two mining operations accounted for the majority of the historic mining operations at the Facility: the former Boston Mine ("aka" Bunker Hill), which was located in the northern portion of the Facility and the Starr and Red Dog Placer mines located in the southern portion of the Facility as shown on Attachment B. The Starr and Red Dog Placer Mines were reportedly worked as a combined hydraulic mining operation. After the 1884 Sawyer decision, which effectively ended hydraulic mining, small scale surface and underground mining activities

¹ Authority cited: Water Code § 13172; Cal. Code Regs., tit. 27, § 20080(h).

continued intermittently up through the 1970s.

10. Hydraulic mining methods washed away the native vegetation and soils leaving vertical cliff faces, exposed bedrock, and a barren landscape. Native, undisturbed gravels still exist on the property and are the focus of the Blue Lead mining operation.

SITE DESCRIPTION

11. The site topography is irregular, containing pits, basins and near-vertical slopes as a result of hydraulic mining previously conducted at the site. Topography divides the Facility into two principle drainage areas, north and south as shown in Attachment D. Topography is also the distinction for the two processing areas planned for the Facility. These are the northern processing area (NPA) and the southern processing area (SPA). The NPA can be defined as the “drainage boundary” shown on Figure 4 of the Discharger’s June 2017 ROWD submittal (S1345-03—01 Technical Report for ROWD_06.08.17.pdf). The SPA “drainage boundary” was not defined in the Dischargers ROWD. For the purposes of these WDRs, the SPA is defined as the hydrological drainage south of the NPA and within the site boundary.
12. The NPA, consisting of approximately 27 acres, was the site of the former Boston Mine and now includes two settling ponds and the freshwater pond. These ponds will be used for (1) sediment retention and flood control, (2) a water source for mining operations, and (3) a temporary storage area for mine tailings. After mining ceases, the settling ponds will remain in support of the anticipated single-family residential use.
13. The settling ponds and the freshwater pond in the NPA were created by previous mining activity. The two settling ponds together have a volume of approximately 3 acre-feet and a surface area of 16,000 square feet. The freshwater pond currently has a surface area of approximately 23,000 square feet, but will be expanded to 30,000 square feet, with a volume of 12 acre-feet. However, additional storage capacity may be needed to retain runoff from mining activities in the NPA.
14. The SPA consists of about 37 acres and was the site of the former Starr and Red Dog Placer Mine hydraulic workings. These historic hydraulic mining operations removed extensive amounts of Tertiary gravels down to bedrock. Sluice channels and sluice tunnels were excavated into bedrock and convey the majority of runoff from the SPA to the Starr Mine drain tunnel running westerly and Arkansas Ravine on the southeast side of the SPA (Attachment E). As a result, the topography is generally flat in the central portion and grades to hummocky conditions along the flanks, transitioning to near-vertical slopes on the northern and western margins. A freshwater pond and settlement basins will also be constructed as part of the SPA.
15. Water for the Facility will be supplied by two onsite wells and storm water runoff from mining areas that will be collected in the onsite ponds. Water will be pumped through the processing plant at a rate of about 1,200 gallons per minute (gpm), or about 625,000 gallons per 10-hour work day. The water will be recycled in a recirculating system; water loss is anticipated through retention in the tailings, evaporation, and percolation. Process water from the Facility will be retained in the settling ponds and is not proposed to be discharged to offsite surface waters.

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16. The Facility is typically inaccessible during the winter and spring. The Discharger plans to operate the mine from late spring to late fall as the weather and access allows. At the end of the operating season, excess water, if any, remaining in the freshwater pond will be land applied to the surrounding forest to retain adequate capacity for the winter storm season.

LAND USE

17. The Facility is currently inactive. Low density residential and mining properties are located in the Facility vicinity. Aerial satellite imagery indicates that the closest residential structure is located approximately 3,300 feet south of the Facility, and is accessed from Red Dog Road.

GEOLOGY

18. The Sierra Nevada Mountains are composed of an imbricated assemblage of meta-sedimentary, meta-volcanic and ocean crustal rocks that have been highly deformed by tectonic forces and intruded by granitic rocks that caused various stages of mineralization, including hydrothermal alterations, quartz veining and contact metamorphism. In the vicinity of the Facility, the bedrock is shale and slate of the Calaveras Formation (Carboniferous to Permian age). It is light gray to black, moderately hard to hard, moderate to highly fissile, and contains numerous discontinuous quartz veins, all of which are indicators of its tectonic past.

Overlying the bedrock is a thick gravel assemblage of early Tertiary age. In some nearby areas, the gravels are overlain by a volcanic sequence of tuffs and flows, but the Facility area does not have these cap rocks. The gravels are interstratified, showing evidence of both slow and fast-water deposition, thus the particle size ranges from clay, silt and sand to gravel and cobble. No boulder-sized rocks have been reported. The gravels are generally well cemented, making them hard to very hard, thus easily form tall resistant cliffs when exposed.

The base of the assemblage is called the "*Blue Lead*", and gets its name from the greenish-gray-blue color due to anoxic hydrologic conditions. This unit was the focus of intense historic mining activities because of its elevated gold content. Stream systems tend to concentrate the gold at the base of the deposit and this is the case at the Facility. However, all the gravels in the deposit contain some amount of gold. The "*Blue Lead*" is exposed at a number of locations on the property. Due to a natural cementation processes, it is usually very hard and forms resistant ledges where exposed.

FAULT ACTIVITY

19. The Fault Activity Map of California and Adjacent Areas, California (CDMG, 1994) shows that segments of the Gillis Hill Fault and Foresthill Fault are located within approximately one mile of the Facility. The Wolf Creek Fault Zone is located approximately 8 miles southwest of the site, and the Grass Valley Fault is located approximately 8 miles west of the site. These faults are described as pre-Quaternary, having no recognized displacement within the last 1.6 million years. A segment of the Giant Gap Fault, located approximately 6 miles southeast of the Facility, is depicted as having evidence of Quaternary (pre-Holocene) displacement.

PRECIPITATION

20. The average annual rainfall for the Facility is approximately 54.5 inches per year and the 10-

year, 24-hour design storm event for the Facility is 5.77 inches based on the historical period from 1864 to 2007 (California Department of Water Resources Data Exchange Center, Nevada City station). The minimum and maximum annual rainfall for the period from 1895 to 2015 was determined to be 16 to 100 inches respectively based on calculations made by Oregon State University's PRISM Climate Group interactive software program.

MINING WASTE CLASSIFICATION

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21. California Code of Regulations, Division 2, Title 27, Subchapter 1, Article 1, §22480(b) (Title 27), classifies mining wastes in three Groups as follows:
- (b) Waste Group Classification - Mining wastes shall be classified as Group A, Group B, or Group C mining wastes based on an assessment of the potential risk of water quality degradation posed by each waste. In setting requirements for each mining waste discharge under this article, the RWQCB shall assign the waste to Group A, Group B, or Group C according to the following criteria:
- (1) Group A - mining wastes of Group A are wastes that must be managed as hazardous waste pursuant to Chapter 11 of Division 4.5, of Title 22 of this code, provided the RWQCB finds that such mining wastes pose a significant threat to water quality;
 - (2) Group B - mining waste of Group B are either:
 - (A) mining wastes that consist of or contain hazardous wastes, that qualify for a variance under Chapter 11 of Division 4.5, of Title 22 of this code, provided that the RWQCB finds that such mining wastes pose a low risk to water quality; or
 - (B) mining wastes that consist of or contain nonhazardous soluble pollutants of concentrations which exceed water quality objectives for, or could cause, degradation of waters of the state; or
 - (3) Group C - mining wastes from Group C are wastes from which any discharge would be in compliance with the applicable water quality control plan, including water quality objectives other than turbidity.
- (c) Classification Considerations - In reaching decisions regarding classification of a mining waste as a Group B or Group C waste, the RWQCB can consider the following factors:
- (1) whether the waste contains hazardous constituents only at low concentrations;
 - (2) whether the waste has no or low acid-generating potential; and
 - (3) whether, because of its intrinsic properties, the waste is readily containable by less stringent measures.
22. As required by Water Code section 13260(k), the Discharger submitted a 7 April 2009 Report of Waste Characterization with the following information:
- A report on the physical and chemical characteristics of the waste that could affect its potential to cause pollution or contamination:
 - A report that evaluates the potential of the discharge of the mining waste to produce, over the long term, acid mine drainage, the discharge or leaching of heavy metals, or the release of other hazardous substances.
23. Tertiary gravels, bedrock, sediment, pond water, and groundwater samples were collected from the NPA and tested for various parameters to assess the potential for the mining and processing activities to degrade water quality. Furthermore, three gravel samples and two

bedrock samples were evaluated for acid generation potential. Acid-base accounting results indicate that the gravels and bedrock are not acid generating.

24. Gravel and bedrock samples were subjected to a standard leaching test using deionized water as extraction solution in the Waste Extraction Test (WET), typically referred to as a DI-WET test. The DI-WET test is intended to produce a water sample that is representative of the precipitation that infiltrates through the subject soil or rock material. The primary constituents of concern related to leaching of the gravels at the site were identified as aluminum and iron.
25. A sample of groundwater from the deep bedrock was collected from the Blue Lead North Well. Groundwater at the site contains elevated concentrations of iron and manganese, which is typical of groundwater in the area of the Facility. Leaching of aluminum and iron through the Tertiary gravels into bedrock does not appear to affect groundwater quality. Previous sampling of surface water in Greenhorn Creek by the U.S. Geological Survey (2004) did not identify the presence of elevated concentrations of aluminum or iron in surface water downstream of the Facility.
26. In sediment samples from the existing ponds, total mercury was detected at a maximum concentration of 0.29 mg/kg, which is less than the corresponding California Human Health Screening Levels for mercury in commercial/industrial soil (180mg/kg). Methyl mercury was not detected in any of the sediment samples.
27. Based on the above information, the mining wastes are classified as a Group C mining waste.
28. To ensure that Group C waste group classification remains appropriate, the Monitoring and Reporting Program will require ongoing sampling and characterization of the mining waste in accordance with Water Code section 13260(k). Ongoing characterization of the mining waste shall be at the frequency of one sample for every 50,000 cubic yards of mining waste discharged or at least one sample per calendar year.

WASTE MANAGEMENT UNIT DESIGN

29. Title 27 section 22490 provides general construction standards for mining wastes. Natural and artificial containment features such as clay or synthetic liners and leachate collection and removal systems are not required for Group C mining units and Group C mining waste.

MERCURY ISSUES

30. Elemental mercury was used extensively in historic gold mining operations for the recovery of fine gold. The United States Geological Survey (USGS) reports that in hydraulic placer mining operations (similar to the Blue Lead Mine) the loss of mercury during gold recovery was reported to be as high as 30 percent.
31. In 2003, the USGS identified total mercury (THg) and methylmercury MeHg) in sediment, water and fauna at the former Boston Mine site (NPA). The highest concentrations were identified in ground sluice channels and sluice tunnels. THg and MeHg were also identified in water and sediment associated with a man-made pond at the northern portion of the Facility, which is now known as the freshwater pond. In 2005, the Bureau of Land Management and other agencies conducted a removal action to address mercury impacts at the Boston Mine.

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32. In 2004, the USGS reported that water discharging from the Starr Placer Mine drainage tunnel which drains the northern portion of the SPA was heavily contaminated with THg and MeHg. In contrast, water inflow into the Starr Mine drainage tunnel was very low in THg and MeHg which suggests that water flowing through and out of the tunnel acquired its THg and MeHg by interaction with contaminated sediments in the tunnel.
33. Water from the southern portion of the SPA flows southwesterly to Arkansas Ravine via a series of bedrock sluice cuts that traverse the Starr Placer Mine from the north to the south and eventually discharges thru a short bedrock tunnel to Arkansas Ravine.
34. The Discharger is aware of the potential for mercury to be present within bedrock sluice tunnels and channels beneath the SPA of the Facility. As discussed in Finding 49 below, prior to any disturbance in proximity to the Starr, Red Dog, or Arkansas Ravine drain tunnels and sluice channels, the Discharger proposes to investigate these areas for mercury and, if necessary, develop work plans to remove any hazardous materials found at the Facility and, plug and abandon those areas under oversight of the Central Valley Water Board², thereby mitigating mercury issues.

SURFACE WATER AND SURFACE WATER MONITORING

35. The Central Valley Water Board has adopted the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (the "Basin Plan") that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives. The Basin Plan, at page II-2.00, states that the "...beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not specifically identify beneficial uses for Greenhorn Creek, but does identify present and potential uses for the Bear River, to which Greenhorn Creek is a tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; hydropower generation; water contact recreation; non-contact water recreation, including aesthetic enjoyment; warm and cold freshwater habitat, and wildlife habitat.
36. Greenhorn Creek, approximately 550 feet west of the Facility is the nearest surface water body. Greenhorn Creek flows into the Bear River, tributary to the Feather River.
37. Results of surface water sampling and analysis performed as part of the 2009 Report of Waste Characterization did not identify significant water quality concerns for surface water in the freshwater pond. Surface water samples collected by USGS (2004) in the South Fork of Greenhorn Creek immediately upstream of the Facility (BY 114) were reported to have total mercury (unfiltered) concentrations of 231 ng/L and 186 ng/L respectively. Trace concentrations of mercury were observed by USGS (2004) in a bedrock crevice of Greenhorn Creek (BY180) below the Facility.
38. Process water from the Facility is not proposed to be discharged to offsite surface waters and no discharge to surface water other than the Facility settling ponds is proposed. Discharges of

² As required by Condition E.1 and Mitigation Measure 8A, Nevada County Community Development Agency *Notice of Conditional Approval Use Permit Application Blue Lead Gold Mine*, February 14, 2014.

storm water run-off which has come in contact with mining waste at the Facility shall be regulated under the State Water Resources Control Board Statewide Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ (Industrial General Permit).

GROUNDWATER

39. The designated beneficial uses of the groundwater, as specified in the Basin Plan are: municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
40. Two groundwater wells currently exist on the site and will be used to supply water for the Project. Although the fractures within the bedrock may contain groundwater, the Facility is not located within a recognized groundwater basin. The Blue Lead South Well was drilled in 2009 and is constructed with 6-inch PVC casing to a depth of 60 feet with an open borehole from 60 feet to 400 feet in depth. The Blue Lead North Well is constructed with 10.25-inch steel casing to a depth of 23 feet with an open borehole beneath that depth. The Blue Lead North Well was initially drilled to 300 feet in 2007, and then subsequently deepened to 400 feet, according to Blue Lead fieldpersonnel.
41. The depth to groundwater in the onsite supply wells varied from 14 feet to 145 feet in 2014. The depth to groundwater in the four private domestic wells ranged from 42 feet to 132 feet in 2014. During the two aquifer pumping tests, no drawdown was observed in any of the non-pumping wells, indicating that there is not a consistent fractured bedrock aquifer in the Project site area. Thus, hydraulic gradient, groundwater flow direction, and groundwater flow rate cannot be determined.
42. The Characterization Report provides groundwater data obtained and analyzed from the Blue Lead North Well for heavy metals. The groundwater is characterized by elevated concentrations of iron (1,000 ug/L) and manganese (1,300 ug/L), exceeding the Primary MCLs for drinking water of 300 and 50 ug/L, respectively. Elevated iron and manganese concentrations are common in bedrock wells in the Sierra Nevada foothills. All other metals were reported at concentrations well below the MCLs. Notably, arsenic and mercury were not present above their respective reporting limits.
43. Based on the Group C classification in Finding 27 above and in accordance with Title 27 section 22500(a), groundwater monitoring is not required by these WDRs. Should the waste group classification change, the need for groundwater monitoring should be reassessed.

MINING PHASES 1 - 3

44. Mining activities will be conducted in five phases over 20 years. Phases 1 through 3 will take place in the NPA and Phases 4 through 5 will take place in the SPA. After mining is complete in Phases 1 through 3, the processing plant will be disassembled during Phase 4 and moved to the SPA and reassembled. A freshwater pond and settlement basins will also be constructed as part of the SPA.
45. Phase 1 activities will consist of road construction, construction of the main offices (three recreational vehicles on a concrete pad), construction of a shop and equipment building, and enlargement of the existing ponds. Starting from the north, excavation and processing of

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material and concurrent reclamation of waste material will occur. Phase 1 includes removal of surface vegetation in the initial areas to be mined as outlined in the Reclamation Plan, then clearing and grubbing of other areas as mining progresses. Prior to mining or vegetation removal, topsoil resources will be mapped, stripped, and stockpiled in designated topsoil stockpile areas for use during reclamation.

46. Phase 2 of the mining operation will consist of a continued southward progression of excavation and processing of material and concurrent reclamation of waste material. The NPA Drainage Plan³ will be implemented at this time.
47. Phase 3 of the mining operation will consist of continued southward progression of excavation and processing of material and concurrent reclamation of waste material.
48. In Phases 1-3, mining waste will initially be discharged into area C1 shown on Attachment D and will subsequently be expanded into area's A1 and A2 as mining progresses southward. Areas A3 and B1 shown on Attachment D are not part of the planned mining operations.

MINING PHASES 4 - 5

49. The Discharger's ROWD anticipates the potential for mercury to be present within bedrock sluice channels and tunnels in the Phase 4 and Phase 5 areas (SPA) of the Facility and proposes to investigate, and if necessary remove any hazardous materials (i.e. mercury and mercury bearing sediments) found in bedrock drain tunnels and sluice channels at the Facility, and then potentially plug and abandon those areas in accordance with an approved work plan.
50. Before initiating any Phase 4 or Phase 5 mining activities in the SPA, the Discharger shall first submit to the Central Valley Water Board for review and concurrence, the necessary technical reports or work plans to conduct investigations to determine the nature and extent of surface water and surface water discharges from the SPA, and the necessary technical reports or work plans describing appropriate cleanup and abatement measures as required by Water Code 13304.
51. After the Central Valley Water Board concurs that the work proposed in the work plan(s) has been successfully implemented, the SPA would be available for the planned Phase 4 and Phase 5 mining activities. It is unknown at this time how these features will be addressed because there is uncertainty as to the potential hazards and what remedial actions may be selected and/or approved.
52. Phase 4 mining activities will consist of disassembling the NPA equipment and transporting it to the SPA. Processing equipment will be assembled, a freshwater pond, two settlement basins will be constructed, a shop, and an equipment storage building will be constructed, and a third onsite supply well will be drilled. Progression of excavation and processing of material in the SPA and concurrent reclamation of mining waste material will continue. Reclamation of the NPA and northern half of the property will be completed.
53. Phase 5 mining activities will consist of relocating the main offices to the SPA, excavation of and processing of material in the SPA, and reclamation of the remainder of the property

³ Drainage Study for Blue Lead/Golden Girl Mine (Holdrege & Kull, March 26, 2009).

planned for mining. The slopes will be contoured to facilitate a natural drainage and the Facility will be prepared for final reclamation procedures.

MINING, PROCESSING, AND WASTE DISPOSAL OPERATIONS

54. The property will be mined in a top down fashion using a bulldozer to rip and stockpile the material for transport to the processing facility. Once the material has been ripped, a dozer pushes the loosened material down the slope to create a surge pile at the base of the slope. A rubber-tired loader collects the material from the surge pile and, either directly loads the material into the processing facility or into a dump truck to be transported to the processing facility. Processing the gold bearing material consists of crushing, washing and scrubbing, and gravity separation using water and screening. Trommels, vibrating screens, and gravity concentrators are used to separate and concentrate the gold ore.
55. Tailings will be hauled by dump truck to the waste disposal areas of the Facility, where the bedrock will be scarified and terraced. Tailings will be dumped, spread, and wheel-rolled for compaction. The stockpiled tailings will be used for reclamation during the final phases of the mining operation. Once an area has been sufficiently mined, reclamation procedures will begin. Initial reclamation procedures will occur in the NPA and extend southward as the mining is completed. Selected classified tailings will be used for road cover, for erosion control measures, and decorative landscaping onsite.
56. Gold is removed from the concentrates by a physical separation process. Final non-gold bearing processed sand (black sand) potentially containing other marketable minerals may be temporarily stored on-site in drums. Black sand concentrates will be shipped off-site to a licensed refiner for further refining. No use of chemicals such as cyanide or mercury is proposed.
57. Process water will be retained in unlined settling ponds. Washed gravels will be dewatered by stockpiling, and water flow is by gravity back into the process water ponds. No discharge of process water off-site is proposed.
58. Prior to mining or vegetation removal, topsoil resources will be mapped, stripped, and then stockpiled in designated topsoil stockpile areas for use during reclamation. Reclamation will take place concurrently with mining.

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WASTE MANAGEMENT STRATEGY

59. Water Code Section 13263.1 requires that before the regional board issues or revises WDRs for any discharge of mining waste, the regional board shall first determine that the proposed mining waste discharge is consistent with a waste management strategy that prevents pollution or contamination of the waters of the state. Regulation under the State Water Resources Control Board's Industrial General Permit may be considered an appropriate waste management strategy. The Industrial General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in the Industrial General Permit.
60. For the treatment, storage, or disposal of group C mining wastes at the Blue Lead Gold Mine, implementation of the monitoring, reporting, and compliance requirements of the Industrial

General Permit is consistent with a waste management strategy that prevents pollution or contamination of the waters of the state and is an alternative to the prescriptive water quality monitoring and response programs for solid waste management units required by Title 27 section 20380.

61. Based on the Group C mining waste classification in Finding 27 above (turbidity as the only constituent of concern), the Discharger shall conduct surface water monitoring at the Facility by obtaining coverage under the State Water Resources Control Board's Industrial General Permit. This requirement represents a Title 27 section 20080(b)(2) engineered alternative to the water quality monitoring requirements for Mining Units under section 22500(a).

POST MINING LAND USES

62. Residential and resource conservation are the proposed end uses for the Facility. The Facility will be reclaimed for use as two single-family residential sites. The two shop buildings, two freshwater ponds, and three water wells will remain onsite in support of the single-family residential use. Roads used to access the mine operations areas will remain at the conclusion of mining operations for the property owner to access the two single-family residential sites.

RECLAMATION AND FINANCIAL ASSURANCES

63. The Dischargers Reclamation Plan (RP08-001) and related financial assurance for the cost of reclaiming all disturbed areas has been approved by the lead agency, Nevada County. The Reclamation Plan is designed to minimize water degradation, control soil erosion and other adverse effects from the surface mining operation, and return the mined land to a usable condition.
64. Title 27 section 22510(c) require the Regional Water Quality Control Boards to issue WDRs which incorporate the relevant provisions of an approved mining and reclamation plan (see California Surface Mining and Reclamation Act, Public Resources Code, Section 2770, et seq.), prescribe additional conditions as necessary to prevent water quality degradation, and ensure that there will be no significant increase in the concentration of indicator parameters or waste constituents in ground or surface water, unless requirements are waived.
65. As described in Finding 27 above, mining waste from the project has been classified as Group C. In accordance with Title 27 22480(b)(3), Group C mining wastes are wastes from which any discharge would be in compliance with the applicable water quality control plan, including water quality objectives other than turbidity.
66. These WDRs consider the Dischargers Reclamation Plan (RP08-001) and related financial assurance as functionally equivalent to the Closure and Post-Closure Maintenance Plan required by Title 27, section 22510(b) and the Closure and Post-Closure Funding required by Title 27, section 22510(f), provided that the Central Valley Water Board approves the financial assurance and is named as an alternate payee for the financial assurance mechanism.
67. These WDRs incorporate by reference the Discharger's Reclamation Plan and related financial assurance in place of Title 27 Closure and Post-Closure Maintenance Plan and Closure and Post-Closure Funding. However, any amendments to the Blue Lead Mine Reclamation Plan

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must be submitted to Central Valley Water Board to determine if the Reclamation Plan and related financial assurance remains consistent with Title 27, subsections 22510 (b), (c) and (f).

68. Ending Post-Closure - The Post Closure Maintenance period shall end when the Central Valley Water Board determines that water quality aspects of reclamation are complete and waste no longer poses a threat to water quality (Title 27 section 22510(h)).

CEQA CONSIDERATIONS

69. On 28 April 2015, the Nevada County Board of Supervisors adopted the Planning Commission's recommendation to certify a mitigated negative declaration (EIS08-027) for a Conditional Use Permit (U08-021) and Reclamation Plan (RP-08-001) for the Blue Lead Gold Mine. The Central Valley Water Board considered the negative declaration and incorporated mitigation measures from the negative declaration into these WDRs, which are designed to prevent potentially significant impacts to water quality. The Initial Study identified potential adverse impacts associated with air quality, biological resources, cultural resources, geology/soils, hazards/hazardous materials, hydrology/water quality, land use, noise, and public services. Mitigation measures have been incorporated into Nevada County's Conditions of Approval for the project and address each of the significant impacts identified and have mitigated those impacts to a less-than significant levels. Mitigation measures 6B, 8A, 9A, 9B, and 9C are intended to mitigate the potential risk of water quality degradation posed by the mining, processing, and reclamation activities at the Facility.

OTHER LEGAL REFERENCES

70. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
71. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-201X-XXXX" are necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

72. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
73. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements (WDRs) for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their

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written views and recommendations.

74. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
75. Any person aggrieved by this action of the Central Valley 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 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final 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:

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

or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Blue Lead Gold Mining LLC (facility owner, operator, and landowner), its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' at the Facility is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 27 California Code of Regulations.
2. The discharge of 'Group A' or 'Group B' mining waste at the Facility is prohibited. For the purposes of this Order, the term 'Group A' or 'Group B' mining waste' is as defined in Title 27 California Code of Regulations.
3. The discharge of any waste other than mining waste at the Facility is prohibited. Prohibited wastes may include, but are not limited to, oil, grease, solvents, other petroleum products, and toxic and hazardous materials.
4. No mining activity or discharge of mining waste shall take place in the SPA of the Facility until such time as the technical reports and work plans described in Finding 50 have been submitted in accordance with Provision G.9.e and approved by the Central Valley Water Board's Executive Officer.
5. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.
6. The discharge of mining waste at the Facility from sources other than the Blue Lead Mine is prohibited.
7. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited.

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8. The Discharger shall comply with all Discharge Specifications listed in Section V of the Standard Provisions and Reporting Requirements (SPRRs) dated February 2009 which are attached hereto and made part of this Order by reference.

B. DISCHARGE SPECIFICATIONS

1. The discharge shall not cause a condition of pollution or nuisance as defined by the Water Code section 13050.
2. The Discharger shall comply with all General Provisions listed in Section III of the SPRRs.
3. As described in SPRRs General Provisions III.H, the Discharger shall notify the Central Valley Water Board of the presence of elemental mercury found or observed in the processing circuit, mining waste, or storm water discharges.
4. As described in SPRRs General Provisions III.H, the Discharger shall notify the Central Valley Water Board of the presence of additional bedrock tunnels or subsidence features encountered at the Facility.
5. Mining waste placed as part of the Phase 1-3 mining activities shall only be discharged into areas A1, A2, and C1 shown on Attachment D. Areas A3 and B1 shown on Attachment D are not part of the planned mining operations and no mining activities or discharge of mining waste in areas A3 and B1 is authorized by these WDRs.
6. Mining waste shall be backfilled in accordance with the Dischargers Reclamation Plan. Final reclaimed fill slopes are not to exceed 2:1, horizontal to vertical as described in the Reclamation Plan.⁴
7. Group C mining units shall be closed in a manner that will minimize erosion and the threat of water quality degradation from sedimentation.
8. As described in Finding 28 and as required by Provision G.9.a, to ensure that Group C waste group classification remains appropriate, the Monitoring and Reporting Program will require ongoing sampling and characterization of the mining waste in accordance with Water Code section 13260(k). Ongoing characterization of the mining waste shall be at the frequency of one sample for every 50,000 cubic yards of mining waste discharged. Waste characterization reports shall be submitted to the Central Valley Water Board within 45-days of reaching each 50,000-cubic yard milestone.
9. If characterization of mining waste in Discharge Specification B.8 above indicates that the nature of the mining waste has changed to Group A or Group B waste classification, mining and processing activity shall immediately cease and the Central Valley Water Board shall be notified as required by SPRRs Section V, General Provisions H.
10. Prior to sealing and/or abandonment of any water supply wells at the Facility, all water

⁴ Blue Lead Mine Reclamation Plan, Revised June 26, 2013. section 5.3.2 Backfilling, Regrading, Slope Stability and Recontouring.

supply wells shall have sanitary seals or shall be properly abandoned and a record of the sealing and/or abandonment of such wells shall be sent to the Central Valley Water Board and to the State Department of Water Resources.

C. FACILITY SPECIFICATIONS

1. Precipitation and drainage controls shall be designed and constructed to accommodate the anticipated volume and precipitation and peak flows from surface runoff for one 10-year, 24-hour storm event as required by Title 27, subsection 22490(h)(1)(C).
2. The Discharger shall comply with the precipitation and drainage controls requirements of Title 27 section 22490(h)(3) and freeboard requirements in 20375(a).
3. The Discharger shall promptly notify the Central Valley Water Board of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method (Title 27 section 21710(c)(2)).
4. Annually, prior to the anticipated rainy season but no later than 1 November, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed and reported in compliance with MRP No. R5-201X-XXXX.
5. As described in Findings 38 and 61, the Discharger must obtain coverage under the Industrial General Permit. Furthermore, the Discharger shall continue to maintain and comply with Order 2014-0057-DWQ, and any amendments thereto that may supersede 2014-0057-DWQ.

D. CONSTRUCTION SPECIFICATIONS

1. All containment structures shall be designed by a California registered civil engineer, and construction shall be supervised and certified by a California registered civil engineer or a certified engineering geologist (Title 27 section 22490(d)).
2. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a registered civil engineer or a certified engineering geologist (Title 27 section 21710(d)).
3. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations Title 27 section 22490(e) and section 20320(a)).

E. CLOSURE AND POST CLOSURE MAINTENANCE PLAN AND FINANCIAL ASSURANCES

1. As described in Finding 66, these WDRs consider the Dischargers Reclamation Plan (RP08-001) and related financial assurance as functionally equivalent to the Closure and Post-Closure Maintenance Plan required by Title 27, section 22510(b) and the Closure

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and Post-Closure Funding required by Title 27, section 22510(f).

2. The Discharger proposes to utilize the California Surface Mining and Reclamation Act assurances of financial responsibility to fulfill the comparable obligations for Closure and Post-Closure Funding required by Title 27 section 22510(f). Therefore, the Discharger shall submit a copy of the financial assurance mechanism to the Central Valley Water Board for approval and in accordance with Provision G.9.c., the Central Valley Water Board must be named as an alternate payee for the financial assurance mechanism **by 31 August 2018**.
3. Central Valley Water Board staff shall periodically review the Financial Assurance Cost Estimate and the Discharger shall update the financial assurance upon request by the Board.
4. These WDRs incorporate by reference the Discharger's Reclamation Plan and related financial assurance in place of Title 27 Closure and Post-Closure Maintenance Plan and Closure and Post-Closure Funding. However, any amendments to the Blue Lead Mine Reclamation Plan must be submitted to Central Valley Water Board to determine if the Reclamation Plan and related financial assurance remains consistent with Title 27, sections 22510 (b), (c) and (f).
5. By **1 February of each year**, the Discharger shall submit to the Central Valley Water Board completed copies of the following annual reports:
 - a. Division of Mine Reclamation's Notice of Completion of Inspection;
 - b. Division of Mine Reclamation's Surface Mining Inspection Report (MRRC-1); and
 - c. Division of Mine Reclamation's Mining Operations Annual Report (MRRC-2).
6. Ending Post-Closure - The Post Closure Maintenance period shall end when the Central Valley Water Board determines that water quality aspects of reclamation are complete and waste no longer poses a threat to water quality (Title 27 section 22510(h)).

F. MONITORING SPECIFICATIONS

1. As described in Finding 61, the Discharger shall conduct surface water monitoring at the Facility by obtaining coverage under the State Water Resources Control Board's Industrial General Permit. The Annual Report for the Industrial General Permit are due **by 1 July**. This requirement represents a Title 27 section 20080(b)(2) engineered alternative to the water quality monitoring requirements for mining units under section 22500(a).
2. As described in Finding 43 above, groundwater monitoring is not required by these WDRs. Should the waste group classification change, the need for groundwater monitoring should be reassessed.
3. The Discharger shall comply with Monitoring and Reporting Program R5-201X-XXXX.
4. The Discharger shall provide Board staff a minimum of **one-week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices.

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G. PROVISIONS

1. The Discharger shall comply with Standard Provisions and Reporting Requirements (SPRRs) Mining Wastes dated February 2009, which are attached hereto and made part of this Order by reference. The SPRRs contain important provisions and requirements with which the Discharger must comply. A violation of any of the SPRRs is a violation of these WDRs.
2. Pursuant to Water Code section 13267, the Discharger shall comply with Monitoring and Reporting Requirements Order R5-2018-XXXX. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls, monitoring of waste, waste discharges, and surface water throughout the active life of the waste management units and any applicable post-closure maintenance period.
3. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
4. The Discharger shall maintain legible records of the volume and type of waste discharged to the surface impoundments and waste management units, and the manner and location of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Central Valley Water Board and of the State Water Resources Control Board, copies of these records shall be sent to the Central Valley Water Board upon request.
5. The Discharger shall comply with all applicable provisions Title 27 that are not specifically referred to in this Order.
6. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order and of the Water Code.
7. The Discharger shall notify Central Valley Water Board staff within 24 hours of any unpermitted discharge, flooding, equipment failure, slope failure, or other change in facility conditions or related precipitation and drainage controls or degradation of waters of the state.
8. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
9. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared by a California-registered civil engineer or certified engineering geologist:

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Item	Task	Due Date
a.	Ongoing characterization of mining waste shall be at the frequency of one sample for every 50,000 cubic yards of mining waste discharged. Waste characterization reports shall be submitted to the Central Valley Water Board within 45-days of reaching each 50,000-cubic yard milestone (Discharge Specifications B.8.)	within 45-days of reaching each 50,000-cubic yard milestone
b.	Submit Annual Report for the Industrial General Permit (Monitoring Specification F.1.)	by 1 July each year
c.	Submit a copy of the financial assurance mechanism to the Central Valley Water Board for approval and the Central Valley Water Board must be named as an alternate payee for the financial assurance mechanism (Closure and Post-Closure Maintenance Plan and Financial Assurances E.2.)	31 August 2018
d.	Submit Division of Mine Reclamation Annual Reports (Closure and Post-Closure Maintenance Plan/Financial Assurances E.5.)	1 February each year
e.	No mining activity or discharge of mining waste shall take place in the SPA of the Facility until such time as the technical reports or work plan(s) described in Finding 50 have been approved by the Central Valley Water Board's Executive Officer (Prohibition A.4.)	180 days prior to proposing to discharge waste

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10. In the event of any change in control or ownership of the Blue Lead Gold Mine facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board's Rancho Cordova Office. To assume operation as a Discharger under this Order, the succeeding owner or operator must submit a written request requesting transfer of the Order to the Executive Officer. The request must contain the requesting entity's full legal name, the state of incorporation (if a corporation), the name, address, and telephone number of persons responsible for contact with the Central Valley Water Board, and a statement complying with the signatory paragraph of the Standard Provisions that states the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved by the Executive Officer.

11. For the purposes of resolving any disputes arising from or related to the California Water Code, any regulations promulgated thereunder, these WDRs or any other orders governing the Facility, the Discharger, its parents and subsidiaries, and their respective past, present, and future officers, directors, employees, agents, shareholders, predecessors, successors, assigns, and affiliated entities, consent to jurisdiction of the Courts of the State of California.

12. The Central Valley Water Board will review this Order periodically and revise requirements

when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley 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 and following. 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:

https://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

PAMELA C. CREEDON, Executive Officer

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