

CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD CENTRAL VALLEY REGION

ORDER R5-2018-0044

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 waste 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 Discharger's ROWD has been used to develop these Waste Discharge

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.

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

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). Waste characterization testing will include the parameters listed in Table 1 of the Dischargers October 2017 Revised Report of Waste Discharge and Application for Waste Discharge Requirements. 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 each calendar year that mining occurs.

WASTE MANAGEMENT UNIT DESIGN

29. Title 27 California Code of Regulations 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.
30. For the purposes of these WDRs, the NPA Group C waste management units will initially be located in Area C1, and will expand into Areas A-1 and A-2 as mining progresses. These areas are delineated on Figure 4 of the Discharger's June 2017 Report of Waste Discharge and Application for Waste Discharge Requirements.

MERCURY ISSUES

31. 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.
32. 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.
33. 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.
34. 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.
35. 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 50 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

36. 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.

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.

37. 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.
38. 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.
39. 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 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

40. 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.
41. 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 field personnel.
42. 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.
43. 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 secondary 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.

44. Based on the Group C classification in Finding 27 above and in accordance with Title 27 California Code of Regulations 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

45. 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.
46. 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 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.
47. 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.
48. Phase 3 of the mining operation will consist of continued southward progression of excavation and processing of material and concurrent reclamation of waste material.
49. 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

50. 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.
51. 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

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

work plans describing appropriate cleanup and abatement measures as required by Water Code 13304.

52. 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.
53. 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.
54. 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 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

55. 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.
56. 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.
57. 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.
58. 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.

59. 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.

WASTE MANAGEMENT STRATEGY

60. 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.
61. 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 California Code of Regulations section 20380.
62. 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 California Code of Regulations section 20080(b)(2) engineered alternative to the water quality monitoring requirements for Mining Units under section 22500(a).

POST MINING LAND USES

63. 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

64. Surface mining operations at the Facility are subject to the California Surface Mining and Reclamation Act (SMARA, 1975). For the purposes of SMARA, Nevada County is the lead agency. 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. 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.

65. Title 27 California Code of Regulations 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.
66. As described in Finding 27 above, mining waste from the project has been classified as Group C. In accordance with Title 27 Code of California Regulations section 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.
67. 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 California Code of Regulations section 22510(b) and the Closure and Post-Closure Funding required by Title 27 California Code of Regulations 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, if agreeable to the Lead Agency, County of Nevada. If the Lead Agency is not agreeable, the Discharger shall provide an alternate and separate Financial Assurance to the Regional Board to fulfill the requirements of Title 27 California Code of Regulations 22510(f).
68. 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 California Code of Regulations subsections 22510 (b), (c) and (f).
69. 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 California Code of Regulations section 22510(h)).

CEQA CONSIDERATIONS

70. 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

71. 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.
72. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2018-0044" 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

73. 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.
74. 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 written views and recommendations.
75. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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 51 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, other than to the on-site facilities identified herein.
8. The Discharger shall comply with all applicable 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 or at least one sample per each calendar year that mining occurs. 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 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 California Code of Regulations subsection 22490(h)(1)(C).
2. The Discharger shall comply with the precipitation and drainage controls requirements of Title 27 California Code of Regulations section 22490(h)(3) and freeboard requirements in section 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 California Code of Regulations 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 39 and 62, the Discharger must obtain coverage under the

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

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 California Code of Regulations 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 California Code of Regulations 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 California Code of Regulations section 22490(e) and section 20320(a)).

E. CLOSURE AND POST CLOSURE MAINTENANCE PLAN AND FINANCIAL ASSURANCES

1. As described in Finding 67, 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 California Code of Regulations section 22510(b) and the Closure and Post-Closure Funding required by Title 27 California Code of Regulations 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 California Code of Regulations 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 California Code of Regulations sections 22510 (b), (c) and (f).
5. By **1 July 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 California Code of Regulations section 22510(h)).

F. MONITORING SPECIFICATIONS

1. As described in Finding 62, 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 California Code of Regulations section 20080(b)(2) engineered alternative to the water quality monitoring requirements for mining units under section 22500(a).
2. As described in Finding 44 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 R5-2018-0044.
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.

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 R5-2018-0044. 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. All reports required by this Order shall be submitted pursuant to Water Code section 13267, and to the extent applicable, shall be prepared by the appropriately licensed professional as described in the Standard Provisions and Reporting Requirements.

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 of 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	by 1 July of each year

	Maintenance Plan/Financial Assurances E.5.)	
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 51 have been approved by the Central Valley Water Board's Executive Officer (Prohibition A.4.)	180 days prior to proposing to discharge waste

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 to the Executive Officer for transfer of the Order prior to assuming operation or ownership of the Facility. 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. Discharge without a pending transfer request or separate WDRs is a violation of the Water Code. If the Executive Officer does not approve the transfer request, discharge is not authorized until WDRs are issued.

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

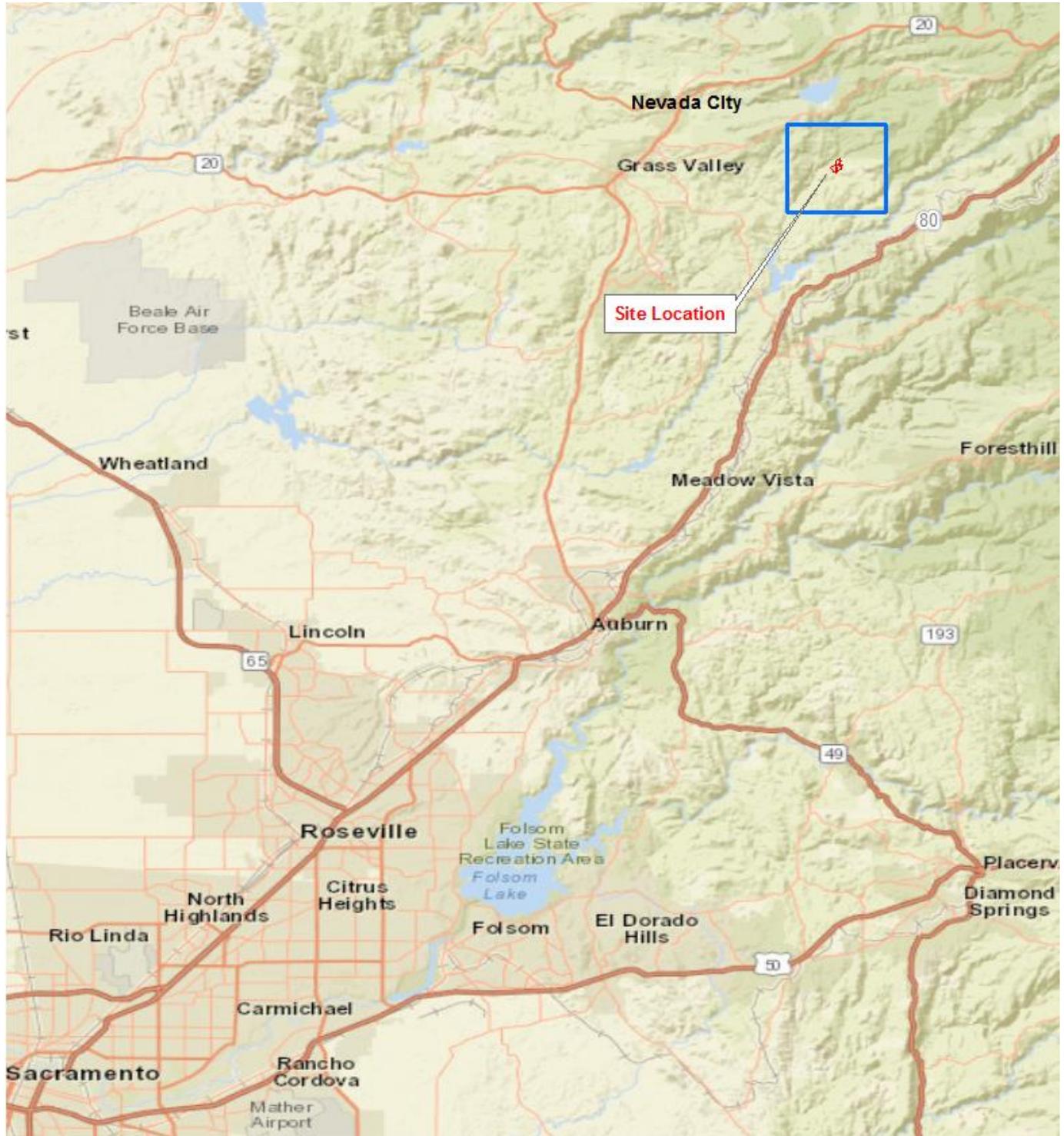
or will be provided upon request.

I, PATRICK PULUPA, 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 31 May 2018.

ORIGINAL SIGNED BY

PATRICK PULUPA, Executive Officer

jsh

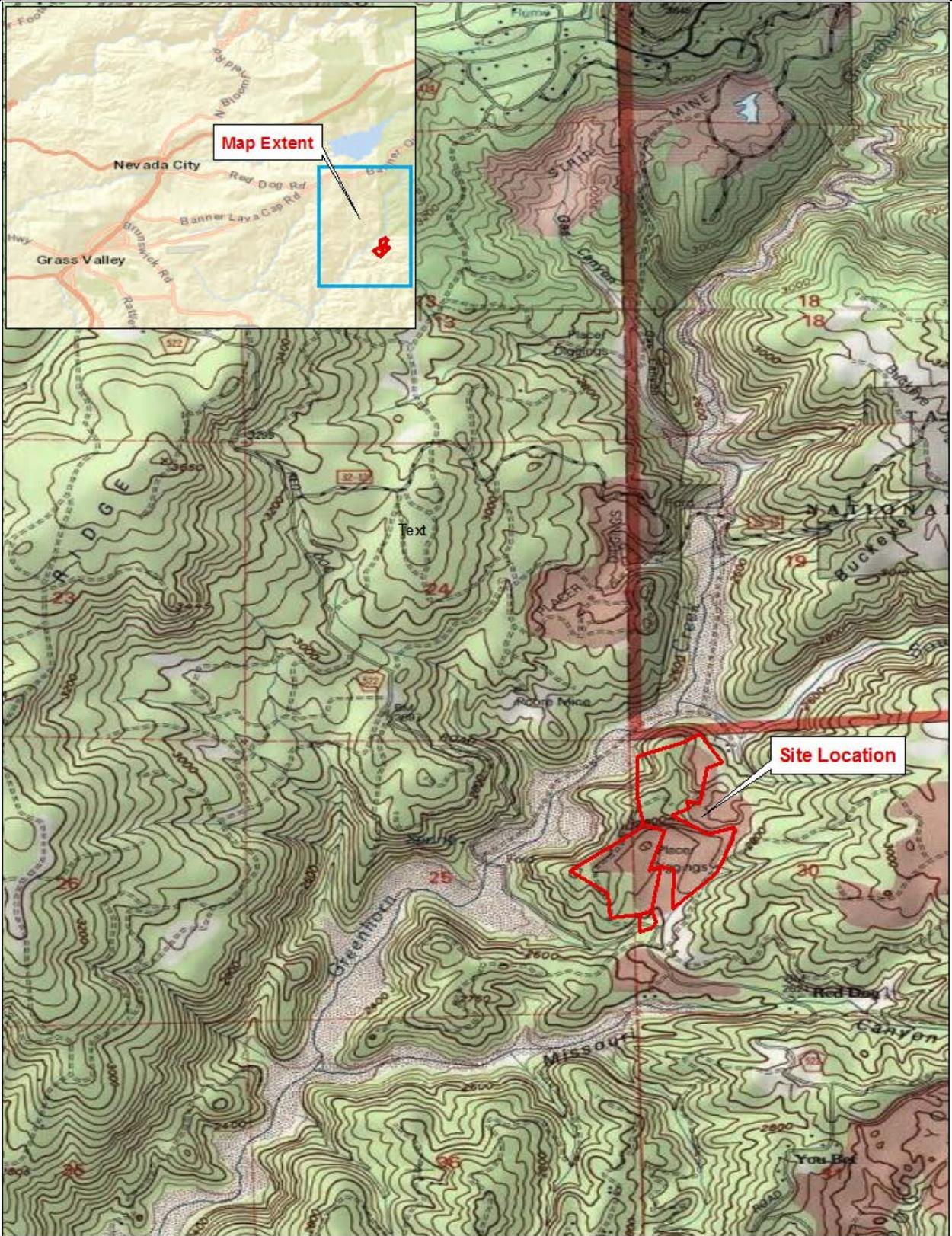


Drawing Reference:
Esri
World Street Map, 2009

Site Location Map
Blue Lead Gold Mining LLC
Blue Lead Gold Mine
Nevada County



Scale:
Approx 1:400,000

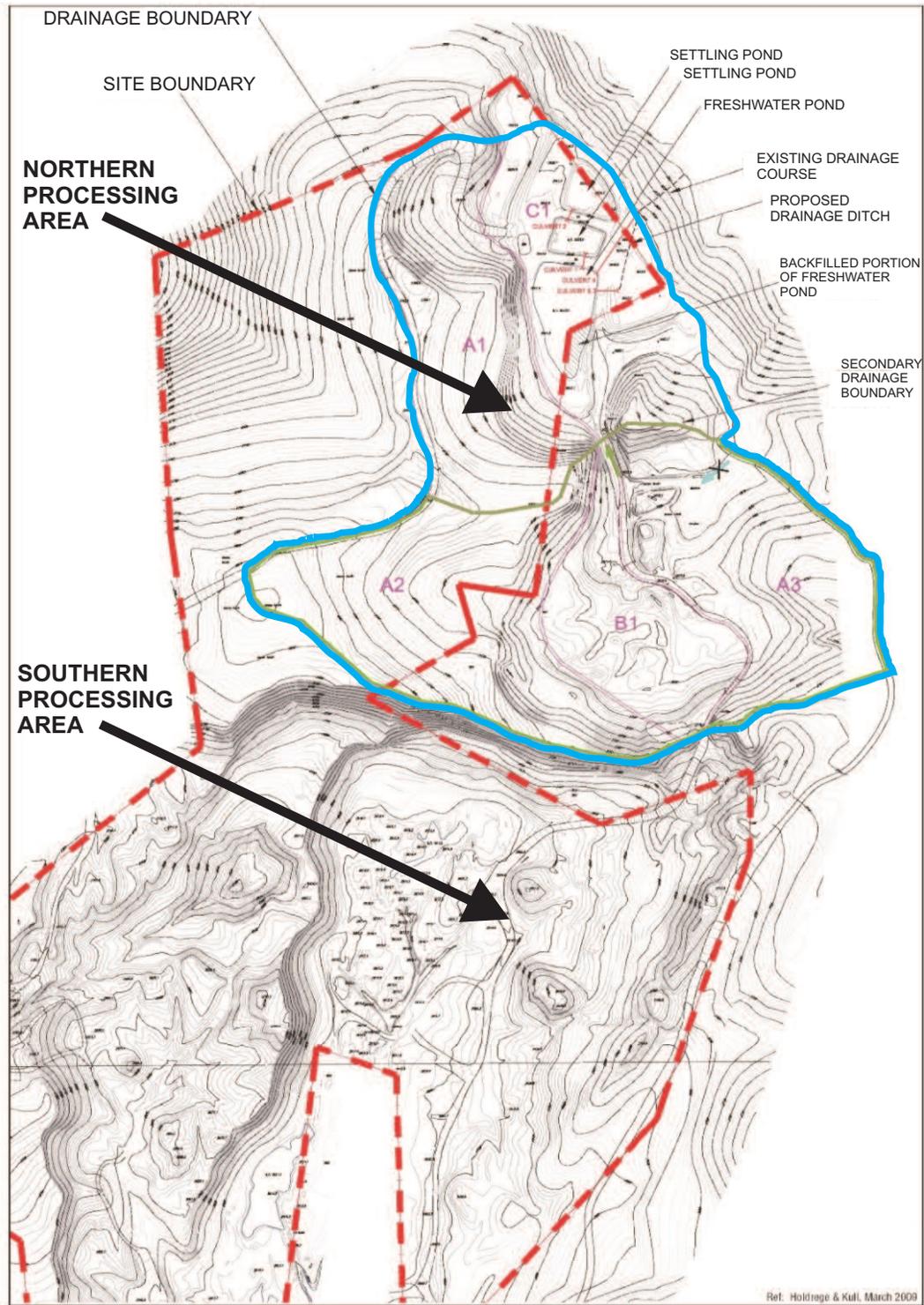


Drawing Reference:
National Geographic Society
USA Topo Maps, 2013

Topographic Map
Blue Lead Gold Mining LLC
Blue Lead Gold Mine
Nevada County



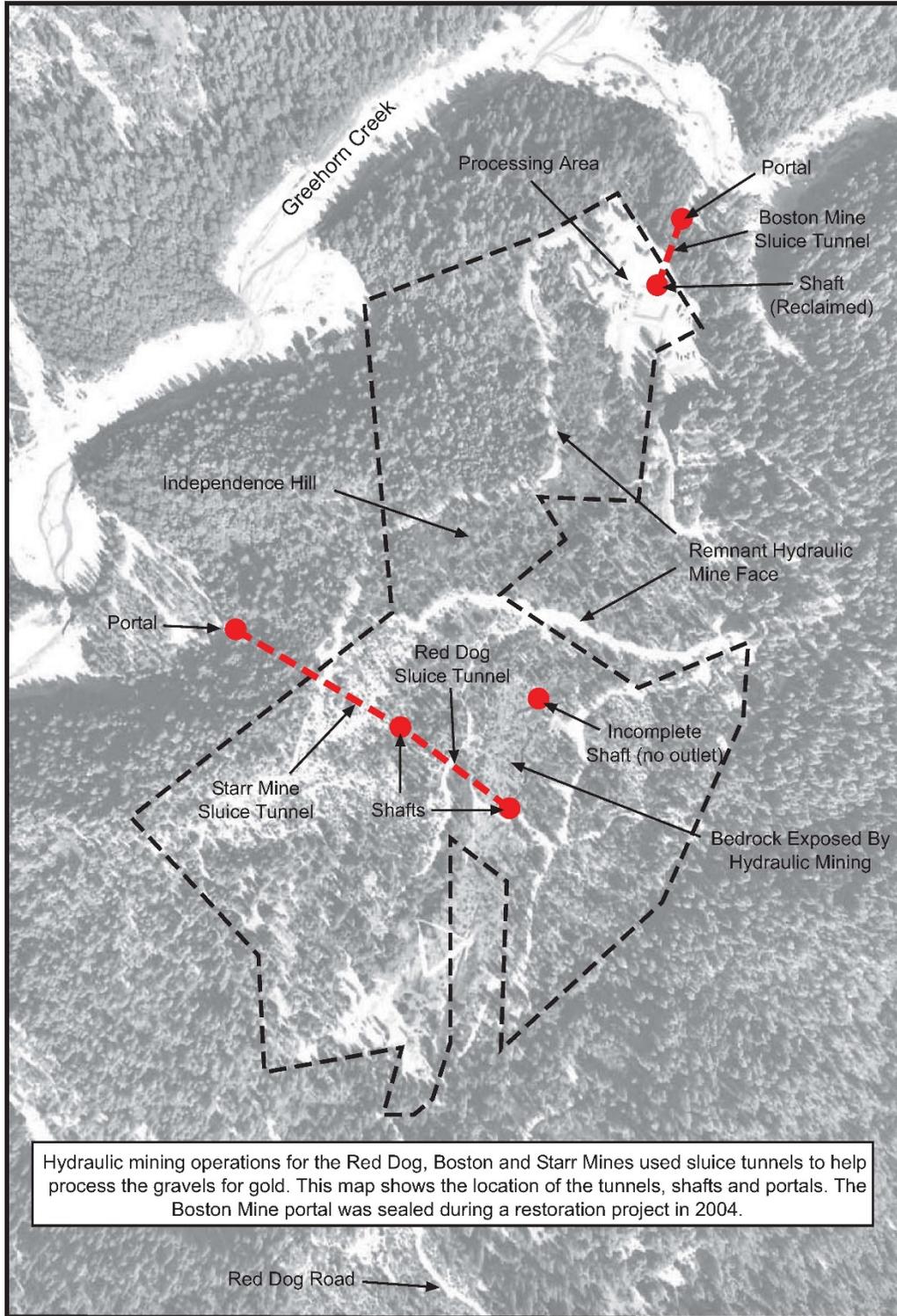
Scale:
Approx 1:24,000



Drawing Reference:
Geocon Consultants Inc.
Figure 4, 07/2017

Mine Drainage Map
Blue Lead Gold Mining LLC
Blue Lead Gold Mine
Nevada County





Ref: Advanced Geologic Exploration, Inc., 10/23/09

Drawing Reference:
Geocon Consultants Inc.
Figure 3, 07/2017

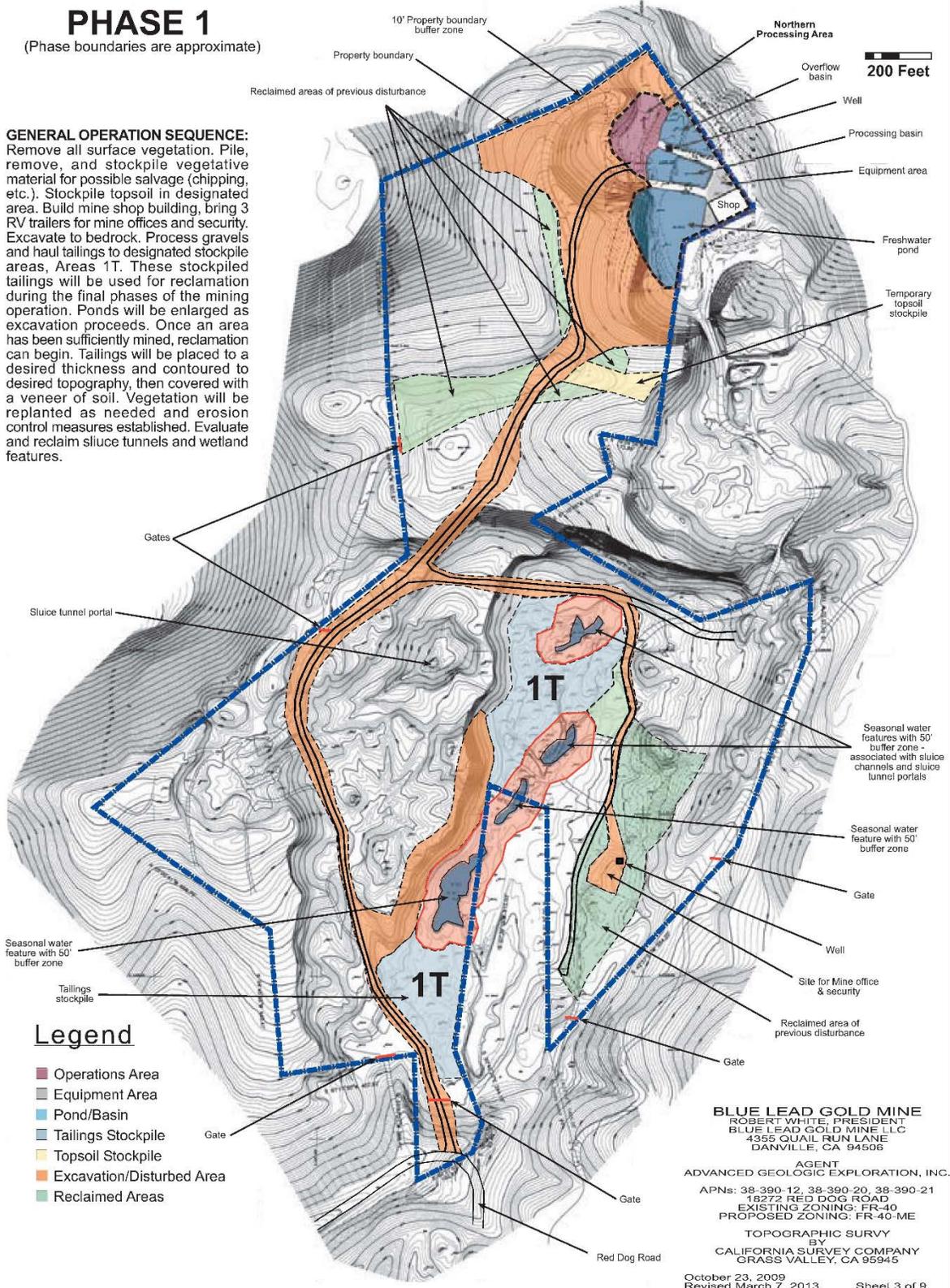
Mine Features Map
Blue Lead Gold Mining LLC
Blue Lead Gold Mine
Nevada County



PHASE 1

(Phase boundaries are approximate)

GENERAL OPERATION SEQUENCE:
 Remove all surface vegetation. Pile, remove, and stockpile vegetative material for possible salvage (chipping, etc.). Stockpile topsoil in designated area. Build mine shop building, bring 3 RV trailers for mine offices and security. Excavate to bedrock. Process gravels and haul tailings to designated stockpile areas, Areas 1T. These stockpiled tailings will be used for reclamation during the final phases of the mining operation. Ponds will be enlarged as excavation proceeds. Once an area has been sufficiently mined, reclamation can begin. Tailings will be placed to a desired thickness and contoured to desired topography, then covered with a veneer of soil. Vegetation will be replanted as needed and erosion control measures established. Evaluate and reclaim sluice tunnels and wetland features.



Legend

- Operations Area
- Equipment Area
- Pond/Basin
- Tailings Stockpile
- Topsoil Stockpile
- Excavation/Disturbed Area
- Reclaimed Areas

BLUE LEAD GOLD MINE
 ROBERT WHITE, PRESIDENT
 BLUE LEAD GOLD MINE LLC
 4355 QUAIL RUN LANE
 DANVILLE, CA 94506

AGENT
 ADVANCED GEOLOGIC EXPLORATION, INC.
 APNs: 38-390-12, 38-390-20, 38-390-21
 18272 RED DOG ROAD
 EXISTING ZONING: FR-40
 PROPOSED ZONING: FR-40-ME

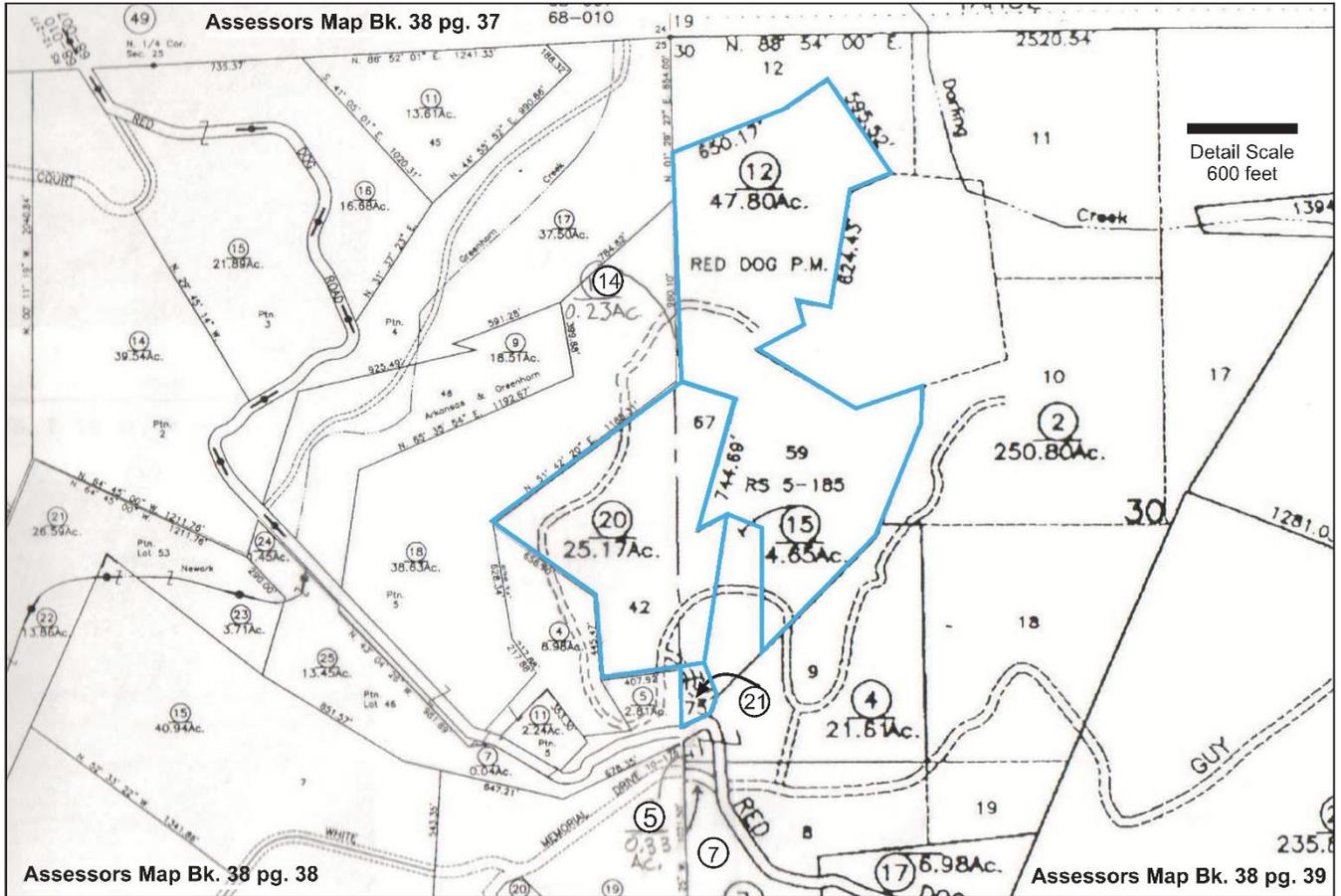
TOPOGRAPHIC SURVY
 BY
 CALIFORNIA SURVEY COMPANY
 GRASS VALLEY, CA 95945

October 23, 2009
 Revised March 7, 2013

Sheet 3 of 9

PROPOSED PHASE 1 MAP WITH 1T AREAS
 Blue Lead Gold Mining LLC
 Blue Lead Gold Mine
 Nevada County





Ref: Advanced Geologic Exploration, Inc., 10/23/09

Drawing Reference:
Geocon Consultants Inc.
Figure 2, 07/2017

ASSESSOR PARCEL MAP
Blue Lead Gold Mining LLC
Blue Lead Gold Mine
Nevada County



INFORMATION SHEET

ORDER NO. R5-2018-0044

BLUE LEAD GOLD MINING, LLC
BLUE LEAD GOLD MINE
MINING, PROCESSING, AND RECLAMATION
NEVADA COUNTY

Blue Lead Gold Mining, LLC (Discharger) owns and proposes to construct and operate the Blue Lead Gold Mine (Facility) in Nevada County. The Facility is comprised of three separate parcels, which total 74-acres located near Greenhorn Creek, tributary to the Bear and Feather Rivers.

The proposed Blue Lead Gold Mine is a surface placer gold mine. 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. After the 1884 Sawyer decision (*Woodruff v. N. Bloomfield Gravel Mining Co.*, 18 F. 753 (1884 D.Cal.)), which effectively ended hydraulic mining, small scale surface and underground mining activities continued intermittently up through the 1970s. Native, undisturbed gravels still exist on the property and are the focus of the Blue Lead Gold Mine operations.

Topography divides the Facility into two principle drainage areas, north and south. 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). Mining activities will be conducted in five phases over 20 years. The proposed mining rate is approximately 225,000 cubic yards per year for 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.

The proposed mining operation includes excavation of the undisturbed tertiary gravels by mobile mining equipment and transportation to the processing plant by haul trucks. Processing of the gold bearing material consists of crushing, washing, screening, and gravity separation. Gold is removed from the concentrates by a physical separation process and the use of chemicals such as cyanide or mercury is not proposed, and the discharge of process water off-site is not authorized.

Two groundwater wells at the Facility will be used to supply water for the project. 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. Most of the processing plant water will be recycled from the unlined settling ponds. Once the fines have settled out in the settling ponds, the water will be pumped to the freshwater pond for storage and reuse; water loss is anticipated through retention in the tailings, evaporation, and percolation.

These WDRs regulate the discharge of mining waste at the Facility. This includes mining, processing, waste containment, precipitation and drainage controls, storm water, and reclamation. Surface mining operations at the Facility are subject to the California Surface Mining and Reclamation Act (SMARA, 1975). For the purposes of SMARA, Nevada County is the lead agency. The Discharger has a lead agency-approved reclamation plan and related financial assurance for the cost of reclaiming all disturbed areas. 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.

Mining waste from the Facility has been classified as Group C in accordance with Title 27 California Code of Regulations. 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. Because of the Group C classification, the WDRs consider the Discharger's reclamation plan and related financial assurance as functionally equivalent to the Closure and Post-Closure Maintenance Plan and the Closure and Post-Closure Funding required by Title 27, provided that the Central Valley Water Board approves the financial assurance and is named as an alternate payee for the financial assurance mechanism, if aggregable to the Lead Agency, County of Nevada. If the Lead Agency is not agreeable, the Discharger shall provide an alternate and separate Financial Assurance to the Regional Board to fulfill the requirements of Title 27 California Code of Regulations section 22510(f).

For the treatment, storage, or disposal of group C mining wastes at the Facility, implementation of the monitoring, reporting, and compliance requirements of the State Water Resources Control Board Statewide Permit for Storm Water Discharges Associated with Industrial Activities 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 California Code of Regulations section 20380.

Elemental mercury was used extensively in historic gold mining operations for the recovery of fine gold. In 2004, the USGS reported that water discharging from a mine drainage tunnel (Starr) in the SPA was heavily contaminated with mercury (total and methylmercury). The Starr tunnel inlet location is on the Discharger's property, but the Starr tunnel outlet is on a separate private parcel, unconnected to the proposed Blue Lead Gold Mine.

The Discharger is aware of the potential for mercury to be present within mine drainage tunnels beneath the SPA of the Facility. As discussed in Finding 50 of the WDRs, before initiating any Phase 4 or Phase 5 mining activities in the SPA of the Facility, the Discharger shall first submit to the Central Valley Water Board for review and concurrence, the necessary technical reports to conduct investigations to determine the nature and extent of surface water and surface water discharges from the SPA, and the necessary technical reports describing appropriate cleanup and abatement measures to mitigate the mercury issues.

JSH

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2018-0044
FOR
BLUE LEAD GOLD MINING, LLC
MINING, PROCESSING, AND RECLAMATION
BLUE LEAD GOLD MINE
NEVADA COUNTY

This monitoring and reporting program (MRP) is issued to Blue Lead Gold Mining, LLC (Discharger) pursuant to Water Code section 13267. The MRP contains requirements for storm water monitoring, facility monitoring, and waste discharge monitoring; requires the submittal of annual reports and financial assurances reporting required by Waste Discharge Requirements (WDRs) Order No. R5-2018-0044, and includes requirements related to the implementation of the Standard Provisions and Reporting Requirements (SPRRs) dated February 2009. Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer. Failure to comply with this MRP, or with the SPRRs, constitutes noncompliance with the WDRs and with Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

Based on Finding 27 of the WDRs, mining waste from the Blue Lead Gold Mine has been classified as Group C mining waste under Title 27 of the California Code of Regulations ("Title 27") section 22480(c), because it contains hazardous constituents only at low concentrations, has low acid generation potential, and is readily containable by less stringent measures. In accordance with Title 27 section 22480(b)(3), mining waste 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.

This MRP represents a Title 27 section 20080(b)(2) engineered alternative to the surface water monitoring requirements for waste management units (or Mining Units) under section 22500(a). This MRP is designed to eliminate unnecessary and duplicative monitoring requirements, while ensuring that the monitoring program meets the requirements of Title 27. The requirements of this MRP are summarized below:

1. Surface Water Monitoring

As described in Findings 60, 61, and 62 of the WDRs, in place of Title 27 prescriptive standards for a surface water monitoring system, this MRP requires coverage under the State Water Resources Control Board's Statewide Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ (Industrial General Permit). The Discharger shall certify and submit an Annual Report for the Industrial General Permit as required in Section B.1. of this MRP.

2. Storm Water Monitoring

Storm water monitoring shall be conducted in accordance with the Industrial General Permit Monitoring and Reporting Requirements. Storm water monitoring and analysis shall also comply with:

- a. Provisions for Monitoring in Section IX of the SPRRs.

3. Groundwater Monitoring

Based on Finding 43 of the WDRs, groundwater monitoring is not required by this MRP. Should the waste group classification change, the need for groundwater monitoring should be reassessed.

4. Monitoring Points

Finding 11 of the WDRs describes the Facility drainage boundaries and existing conditions; the northern drainage area is shown on Attachment D. Storm water flow from the northern drainage area discharges to an existing seasonal drainage course at the northeast corner of the Facility, which then flows approximately 150 feet north to the South Fork of Greenhorn Creek. Monitoring must be performed at all discharge locations, where storm water, which has come in contact with mining waste discharges from the property boundary.

5. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for precipitation and drainage controls; general containment structure criteria; and shall assess preparedness for winter conditions including but not limited to the required surface impoundment capacity and erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Annual facility inspection reporting shall be submitted as required in Section B.2 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all waste management unit berms for damage **within 7 days** following major storm events capable of causing damage or significant erosion. Freeboard in the settling pond(s) and freshwater pond shall be measured and recorded within 24 hours after onsite rainfall of greater than two inches in a

24-hour period. The Discharger shall take photos of any problems areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.3 of this MRP.

c. Rainfall Monitoring

The Discharger shall monitor and report rainfall data using a nearby **California Department of Water Resources Data Exchange Center** station (i.e. Nevada City, Secret Town, or equal);

<http://cdec.water.ca.gov/cdecstation2/>

Data shall be used in establishing the severity of storm events and wet seasons for comparison with design parameters used for mining unit design, conveyance, and drainage design. Daily data and onsite observation shall be used for establishing the need for inspection and repairs after major storm events. Rainfall data shall be reported in the annual monitoring reports as required by this MRP under "Reporting".

d. Standard Observations

The Discharger shall conduct Standard Observations at the facility in accordance with this section of the MRP. Standard observations shall be conducted in accordance with the schedule specified in Table 1 below:

<u>Mining Unit Type</u>	<u>Frequency</u>	<u>Season</u>
Active	Weekly	Wet: 1 October to 30 April
Active	Monthly	Dry: 1 May to 30 September
Inactive/Closed	Monthly	Wet: 1 October to 30 April
Inactive/Closed	Quarterly	Dry: 1 May to 30 September

Standard Observations for the mining units shall include:

- 1) Signs of erosion along the slopes or perimeter (show affected area on map):
- 2) Any seepage discharged from the base of any mining unit containing mining waste is considered a demonstrative indicator of the potential threat to water quality posed by the mining waste. Seepage discharged from the base of any Mining Unit shall be treated in accordance with SPRRs Reporting Requirements Section VIII.

Results of Standard Observations shall be submitted in the annual monitoring report required in Section B.2 of this MRP.

6. Waste Discharge Monitoring

- a. The Discharger shall monitor the quantity of all mining waste discharged to settling pond(s), discharged temporarily to waste pile(s), and reclaimed in accordance with the Reclamation Plan. The information should be recorded as specified in Table 2 below and submitted in the annual monitoring report required in Section B.2 of this MRP.

Table 2: Waste Discharge Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Area mined or disturbed	acres	Monthly
Mining waste discharged to settling pond(s)	cubic yards	Monthly
Mining waste discharged temporarily to waste pile(s)	cubic yards	Monthly
Mining waste reclaimed per reclamation plan	cubic yards and acres	Monthly
Settling pond(s) freeboard	feet and tenths	Monthly

- b. To ensure that Group C waste group classification remains appropriate, the Discharger shall perform ongoing characterization of the mining waste in accordance with Water Code section 13260(k). This shall include the parameters listed in Table 1 of the Dischargers October 2017 Revised Report of Waste Discharge and Application for Waste Discharge Requirements. 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 that mining occurs. Results of ongoing characterization of the mining waste shall be reported as required in WDRs Provision G.9.a. and included in the annual monitoring report required in Section B.2 of this MRP.

B. REPORTING

The Discharger shall submit the following reports in accordance with the schedule in Table 3 below:

Table 3: Reporting Schedule			
<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Annual Report Industrial General Permit	31 December	15 July
B.2	Annual Monitoring Report	31 December	1 February
B.3	Annual Facility Inspection Report	31 October	15 November
B.4	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.5	Financial Assurances Report	31 December	1 July

Reporting Requirements

The Discharger shall submit monitoring reports **annually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order No. R5-2018-0044 and the SPRR. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with the WDRs or the lack thereof. Data shall be submitted in a digital format, such as a computer disk.

The Annual monitoring report shall be submitted to the Central Valley Water Board in accordance with the above schedule. Field and laboratory tests shall be reported in each monitoring report. The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility. Such records shall be legible and shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and
- f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Annual Monitoring Report:** The annual monitoring report is due by **1 February** of each year. Each annual monitoring report shall contain at least the following:
 - a) A map showing each mining unit and;
 - the area mined or disturbed in acres;
 - the yardage or tonnage of mining waste discharged to each mining unit;
 - the yardage or tonnage and area of mining waste reclaimed per reclamation plan during the previous calendar year; and
 - include a projection of the year in which each discrete mining unit will be completed;
 - b) A copy of the Dischargers Industrial General Permit Annual Report required in Section A.1 of this MRP.
 - c) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - d) A statement that the sampling procedure was conducted in accordance with the approved Sample and Analysis Plan.
 - e) Tabular and graphical summaries of all data collected during the year. All monitoring parameters shall be graphed to show historical trends at each monitoring point for all samples taken within the previous five calendar years at a scale appropriate to show trends or variations in water quality.

- f) All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as necessary for conducting the periodic review and analysis required by Title 27. (Cal. Code Regs., tit. 27, § 20420(h)).
 - g) Tabulated monthly freeboard levels in the settling ponds with comparison to the freeboard requirement in the Facility Specifications of the WDRs.
 - h) A summary of all Facility Monitoring including onsite rainfall data for the reporting period required in Section A.5.c of this MRP.
 - i) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
 - j) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
2. **Annual Facility Inspection Report:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.5.a of this MRP, above.
 3. **Major Storm Event Reporting:** The Discharger shall notify Central Valley Water Board staff within **7 days** after major storm events of any damage or significant erosion and report any needed repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.5.b of this MRP above for requirements for performing the inspection and conducting the repairs.
 4. **Financial Assurances Report:** By **1 July of each year**, the Discharger shall submit to the Central Valley Water Board updated financial assurance cost estimates and the financial assurance mechanism for closure, and post-closure maintenance (reclamation) of the Facility. Refer to Closure and Post Closure Maintenance Plan and Financial Assurances Specifications E.2, E.3, E.4, and E.5 of the WDRs.
 5. **Annual Surface Mining Inspection Report:** By **1 February of each year**, the Discharger shall submit to the Central Valley Water Board completed copies of the following annual reports¹:

¹ Refer to Closure and Post Closure Maintenance Plan and Financial Assurances Specifications E.1. to E.5. of the WDRs.

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STANDARD PROVISIONS AND REPORTING REQUIREMENTS
MINING WASTES
For Title 27 (27CCR §20005 et seq.)
FEBRUARY 2009

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF MINING WASTES
REGULATED BY TITLE 27
(27 CCR §20005 et seq.)
MINING FACILITIES

FEBRUARY 2009

I. APPLICABILITY

- A. These Standard Provisions and Reporting Requirements are applicable to “mining waste” disposal sites that are regulated pursuant to the provisions of the California Code of Regulations, title 27 section 20005 et seq. (27 CCR or Title 27). The term “Mining waste” is defined in title 27 section 22480.
- B. For this document, WMU is defined as a waste management unit containing mining waste.
- C. “Order,” as used throughout this document, means the Waste Discharge Requirements to which these Standard Provisions and Reporting Requirements are incorporated.
- D. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
- E. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
- F. If there is any conflicting or contradictory language between the Waste Discharge Requirements (WDRs), the Monitoring and Reporting Program (MRP), or the Standard Provisions and Reporting Requirements (SPRR), then language in the WDRs shall govern over either the MRP or the SPRR, and language in the MRP shall govern over the SPRR.

- G. Unless otherwise stated, all terms are as defined in California Water Code (CWC) section 13050 and in title 27 section 20164.

II. TERMS AND CONDITIONS

- A. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Resources Control Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of these waste discharge requirements and the California Water Code, which can result in the imposition of civil liability [CWC §13350(a)]
- B. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [CWC §13381]:
1. Violation of any term or condition contained in this Order;
 2. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 3. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 4. A material change in the character, location, or volume of discharge.
- C. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge, or other appropriate joint technical document, with the Central Valley Regional Water Quality Control Board (hereafter Central Valley Water Board) [CWC §13260(c) and §13264(a)]. A material change includes, but is not limited to, the following:
1. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 2. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment); or
 3. A change in the type of waste being accepted for disposal.

- D. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [CWC §13267(c)].
- E. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [CWC §13263(e) and 27 CCR §21720(b)].
- F. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [CWC §13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
- G. The Discharger shall submit to the Central Valley Water Board for review and approval a closure and post-closure maintenance plan prepared in accordance with Closure and Post-Closure for Mining WMUs [27 CCR §22510].

III. GENERAL PROVISIONS

- A. The discharge shall neither cause nor contribute to the contamination, degradation, or **pollution of groundwater** via the release of waste constituents in either liquid or gaseous phase.
- B. Wastes shall not be discharged to any surface water body without a Stormwater Permit or a NPDES permit.
- C. The discharge shall neither cause nor contribute to any **surface water pollution**, contamination, or nuisance, including, but not limited to:
 - 1. floating, suspended, or deposited macroscopic particulate matter or foam;
 - 2. increases in bottom deposits or aquatic growth;
 - 3. an adverse change in temperature, turbidity, or apparent color beyond natural background levels;

4. the creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin;
 5. the introduction or increase in concentration of toxic or other pollutants/contaminants resulting in unreasonable impairment of beneficial uses of waters of the State.
- D. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the waste management unit (WMU) if such waste constituents could migrate to waters of the State—in either the liquid or the gaseous phase—and cause **a condition of contamination, pollution, degradation, or nuisance**.
- E. The discharge shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of contamination, pollution, degradation, or nuisance to occur, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in the Monitoring and Reporting Program.
- F. The Discharger shall take **all reasonable steps to minimize any adverse impact** to the waters of the state resulting from noncompliance with this Order. (“Order,” as used throughout this document, means the Waste Discharge Requirements). Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
- G. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [27 CCR §21710(c)(1)].
- H. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [27 CCR §21710(a)(4)].

- I. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU or portion of a WMU, and the manner and location of discharge. These records shall be on forms approved by the State Water Resources Control Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Resources Control Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post closure maintenance period, copies of these records shall be sent to the Central Valley Water Board. [27 CCR §21720(f)].
- J. All WMUs shall be protected from flooding as required in title 27 section 22490(b).
- K. Diversion and drainage facilities shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff as follows [27 CCR §22490(h)(1)]:
 1. Group A – one 25 year, 24 hour storm;
 2. Group B – one 10 year, 24 hour storm; and
 3. Group C – one 10 year, 24 hour storm.
- L. Precipitation on Group A and B waste piles that is not diverted by containment structures shall be collected and managed through the leachate collection and removal system (LCRS). The Central Valley Water Board can make exemptions to this requirement if the collected fluid does not contain indicator parameters or waste constituents in excess of applicable water quality objectives [27 CCR §22490(h)(2)].
- M. Dischargers shall comply with special requirements for surface impoundments given in title 27 section 20375. Nevertheless, for Mining Units, Dischargers shall use the precipitation conditions in title 27 section 22490(h)(1).

IV. **FINANCIAL ASSURANCE PROVISIONS**

- A. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified WMU in accordance with an approved closure and post-closure maintenance plan [27 CCR §22510(f)].

- B. If a lead agency acting under the authority of §2774(a) of the Public Resources code requires assurances of financial responsibility, these assurances can be used to fulfill all comparable requirements provided that:
 - 1. the Central Valley Water Board approves the assurance; and
 - 2. the Central Valley Water Board is named as alternate payee. [27 CCR §22510(g)]

V. DISCHARGE SPECIFICATIONS

- A. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the WMU and whether or not the wastes are required to be managed as a Group A, Group B or Group C mining waste [27 CCR §22480]
- B. Group B and Group C WMUs contained with liners shall be designed, constructed, and operated to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [27 CCR §20240(c), §20330(a), and §22490(f)(6)], including the capillary fringe.
- C. The Discharger shall submit operations plans and any amended operation plans describing those WMU operations which could affect water quality, including, but not limited to [27 CCR §21760(b)]:
 - 1. A description of proposed treatment, storage, and disposal methods;
 - 2. Contingency plans for the failure or breakdown of waste handling facilities or containment systems, including notice or any such failure, or any detection of waste or leachate in monitoring facilities, to the Central Valley Water Board, local governments, and water users downgradient of the WMU(s); and
 - 3. A description of inspection and maintenance programs which will be undertaken regularly during disposal operations and the post-closure maintenance period.

VI. FACILITY SPECIFICATIONS

- A. Surface and subsurface drainage from outside of a WMU shall be diverted from the WMU [27 CCR §20365(e)].

- B. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [27 CCR §20365(d)].
- C. The Discharger shall promptly notify the Central Valley Water Board of any slope failure occurring at a WMU. Any failure which threatens the integrity of containment features or the WMU shall be promptly corrected in accordance with an approved method [27 CCR §21710(c)(2)].

VII. CONSTRUCTION SPECIFICATIONS

- A. 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 as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge. WMUs shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the WMU commences [27 CCR §22490(d)].
- B. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a WMU's containment features or monitoring systems shall be approved by a registered civil engineer or a certified engineering geologist, as appropriate [27 CCR §21710(d)].
- C. 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 [27 CCR §22490(e) and §20320(a)].
- D. WMU liners shall be designed and constructed to contain the fluid, including gas, waste, and leachate [27 CCR §20330(a)].
- E. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities

as long as a reasonable number of field hydraulic conductivity tests are also conducted [27 CCR §20320(c)].

- F. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [27 CCR §20320(b)].
- G. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the WMU and during the post-closure maintenance period. The systems shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [27 CCR §20340(d)].
- H. Leachate collection and removal systems shall be designed and constructed to ensure that there is no buildup of hydraulic head on the liner. The depth of fluid in the collection sump shall be kept at the minimum needed to ensure efficient pump operation [27 CCR §20340(c)].
- I. For Units constructed (or reconstructed) after July 18, 1997, all construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [27 CCR §20323] and approved by the Executive Officer.

VIII. REPORTING REQUIREMENTS

A. General Requirements

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall **notify the Central Valley Water Board by telephone** as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within two weeks. The written notification shall state the nature, time and cause of **noncompliance**, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. The Discharger shall **immediately notify the Central Valley Water Board** of any **evidence of a release**, or of any flooding, equipment failure, slope failure, or other **change in site**

conditions which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.

3. The Discharger shall **mail a copy of each** monitoring **report** and any other reports required by this Order to the appropriate office or the current address if an office relocates. Addresses for each office as of November 2008 are:

California Regional Water Quality Control Board
Central Valley Region
11029 Sun Center Drive #200
Rancho Cordova, CA 95670

California Regional Water Quality Control Board
Central Valley Region
1685 "E" Street
Fresno, CA 93706-2007

California Regional Water Quality Control Board
Central Valley Region
415 Knollcrest Drive, Suite 100
Redding, CA 96002

4. The Discharger shall **retain records of all monitoring information**, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Central Valley Water Board Executive Officer.

Such records shall show the following for each sample:

- a. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;
- b. Date, time, and manner of sampling;
- c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e. Calculation of results; and
- f. Results of analyses, and the method detection limit (MDL) and practical quantitation limit (PQL) for each analysis.

Such records shall also include legible records of the volume and type of each waste discharged at each WMU and the manner and location of discharge. These waste discharge records shall be maintained at the facility until the beginning of the post-closure maintenance period, at which time copies of these records shall be sent to the Central Valley Water Board.

5. **All reports and transmittal letters shall be signed** by persons identified below:
- a. *For a corporation:* by a principal executive officer of at least the level of senior vice-president.
 - b. *For a partnership or sole proprietorship:* by a general partner or the proprietor.
 - c. *For a municipality, state, federal or other public agency:* by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if;
 - i. the authorization is made in writing by a person described in a, b, or c of this provision;
 - ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a WMU, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - iii. the written authorization is submitted to the Central Valley Water Board.

Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for

obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

6. In reporting the monitoring data, the Discharger shall arrange the **data in tabular form** so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or lack thereof.
7. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Central Valley Water Board.

B. Reports to be Filed with the Central Valley Water Board

1. A transmittal **letter** explaining the essential points in each report shall accompany each report. Such a letter shall include a discussion of any violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting the violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.
2. Each monitoring report (e.g., Detection Monitoring Report, Constituents of Concern 5-Year Report) shall include a **compliance evaluation summary**. The summary shall contain at least:
 - a. For each monitored ground water body, a description and graphical presentation of the gradient and direction of **ground water flow** under/around the WMU, based upon water level elevations taken during the collection of the water quality data submitted in the report.
 - b. For each monitoring well addressed by the report, a description of the method and time of water level measurement, the type of pump used for **purgings** and the placement of the pump in the well, and the method of purging (pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of pH,

- temperature, conductivity, and turbidity testing, well recovery time, and method of purge water disposal).
- c. For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump (or other device) used and its placement for **sampling**, and a detailed description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations).
 - d. A **map or aerial photograph** showing the locations of observation stations, Monitoring Points, and Background Monitoring Points.
 - e. **Laboratory** statements of results of all analyses evaluating compliance with requirements.
 - f. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
 - g. A summary and certification of completion of all Standard Observations for the WMU, for the perimeter of the WMU, and for the receiving waters. The terms 'Standard Observations' and 'receiving waters' as used in this document are defined below in section **XII. Definitions**.
 - h. The quantity and types of wastes discharged and the locations in the WMU where waste has been placed since submittal of the last such report.
3. The Discharger shall report by telephone concerning any **seepage from the disposal area** immediately after it is discovered. A written report shall be filed with the Central Valley Water Board within seven days, containing at least the following information:
 - a. a map showing the location(s) of seepage;
 - b. an estimate of the flow rate;

- c. description of the nature of the discharge (e.g., all pertinent observations and analyses); and
- d. corrective measures underway or proposed, and corresponding time schedule.

See **RESPONSE TO A RELEASE** below.

- 4. The Discharger shall submit an **Annual Monitoring Summary Report** to the Central Valley Water Board summarizing the monitoring results from the previous year. This report shall contain:
 - a. For each Monitoring Point and Background Monitoring Point, submit in **graphical format** the laboratory analytical data for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month Reporting Periods, presented in tabular form as well as on computer disk, either in EXCEL format or in another file format acceptable to Central Valley Water Board staff. Data may be submitted in commonly available compressed format. The Central Valley Water Board regards the submittal of data in hard copy and electronic format as "...the form necessary for..." statistical analysis (27 CCR §20420(h)), in that this facilitates periodic review by the Central Valley Water Board's statistical consultant.
 - c. **A comprehensive discussion of the compliance record**, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

- d. A **map** showing the area and elevations in which filling has been completed during the previous calendar year.
- e. A **written** summary of the monitoring results, indicating any changes made or observed since the previous annual report.
- f. An evaluation of the effectiveness of the leachate monitoring/control facilities.

IX. PROVISIONS FOR MONITORING

A. General

1. The Discharger shall maintain a **written sampling and analysis plan** sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the Discharger shall be familiar with the sampling and analysis plan.
2. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and regularly **calibrated** to ensure their continued accuracy.
3. The Discharger shall construct or abandon all **monitoring wells** to meet or exceed the standards stated in the State Department of Water Resources Bulletin 74-81 and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.
4. All sample analyses shall be conducted at a **laboratory accredited** for such analyses by the State Department of Health Services. The **Quality Assurance-Quality Control Program** must conform to EPA guidelines (e.g., "Laboratory Documentation Requirements for Data Validation," January 1990, USEPA Region 9) or to procedures approved by the Central Valley Water Board.
5. The director **of the laboratory** whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Central Valley Water Board.
6. Unless samples are from water supply wells or unless otherwise specified by Central Valley Water Board staff, all ground water samples to be analyzed for **metals** shall be field-filtered.

Filtration methods shall minimize the entrainment of air into the sample (by using, for example, in-line pressure filtration).

B. Sampling and Analytical Methods

1. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken within a span not to exceed 30 days, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.
2. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
3. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
4. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied by both the estimated MDL and PQL values for that analytical run.
5. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than

simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

6. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
7. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
8. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
9. The statistical method shall account for data below the PQL with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are

available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

10. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.
11. The Discharger may propose an alternate statistical method [to the methods listed under title 27 section 20415(e)(8)(A-D)] in accordance with title 27 section 20415(e)(8)(E), for review and approval by the Executive Officer. Upon receiving written approval, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
12. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:
 - a. From the constituent of concern or monitoring parameter list, identify each analyte in the **current** sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary

indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:

- i. The data contains two or more analytes that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
 - ii. The data contains one or more analyte that equals or exceeds its PQL.
- b. **Discrete Retest** [27 CCR §20415(e)(8)(E)]:
- i. In the event that the Discharger concludes (pursuant to paragraph 12.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated.
 - ii. For any given retest sample, the Discharger shall include, in the retest analysis, **only the laboratory analytical results for those analytes detected in the original sample**. As soon as the retest data are available, the Discharger shall conclude that there is measurably significant evidence of a release if two or more analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL and shall:
 - a. **Immediately** notify the Central Valley Water Board about any constituent or constituents verified to be present at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
 - b. Comply with section **IX.B.14** of this document, **Sampling and Analytical Methods**, if any constituent or constituents were verified to be present.
 - iii. Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list

such that it is monitored during each regular monitoring event.

13. If the Executive Officer determines, after reviewing the submitted report in 12.b. above, that the detected constituent most likely originated from the WMU(s), the Discharger shall **immediately** implement the requirements of section **X.C., Release Has Been Verified**, of this document.
14. If the Discharger determines that there is measurably significant evidence of a release from the WMU at any monitoring point, the Discharger shall **immediately** implement the requirements of section **X.C., Release Has Been Verified**, of this document.

X. RESPONSE TO A RELEASE

A. Monitoring Point Evidence of a Release

If the Discharger determines that there is “measurably significant” evidence of a release from the WMU (i.e. the initial statistical comparison or nonstatistical comparison indicates, for any constituent of concern or monitoring parameter, that a release is tentatively identified), the Discharger shall [27 CCR §20420(j)]:

- a. **Notification — immediately notify Central Valley Water Board staff verbally** of the finding and **provide** written notification by certified mail **within seven days** of such determination. The notification shall, for each affected monitoring point, identify the monitoring parameters and constituents of concern that have indicated “measurably significant” evidence of a release from the WMU [27 CCR §20420(j)(1)];
- b. **Retest Optional** — can immediately initiate the verification (retest) procedure pre-approved by the Central Valley Water Board [pursuant to §20415(e)(8)(E) of Title 27] to verify that there is “measurably significant” evidence of a release from the WMU for a parameter or constituent which has indicated a release at a monitoring point [27 CCR §20420(j)(2)]; and

- c. **Next Step** — immediately following detection of a release [or after completing the retest pursuant to b) above and confirming the existence of a release], shall comply with the requirements of C. (Release Has Been Verified) below [27 CCR §20420(j)(3)].

B. **Physical Evidence of a Release**

If the Discharger determines there is significant **physical** evidence of a release, the Discharger shall notify the Central Valley Water Board **by certified mail within 7 days** of such determination, and within 90 days shall submit an amended report of waste discharge to make any appropriate changes to the detection monitoring program [27 CCR §20420(l)(1) & (2)].

C. **Release Has Been Verified**

1. If the detection was made based upon sampling and analysis for monitoring parameters, **immediately** sample all monitoring points in the affected medium at that WMU and determine the concentration of all constituents of concern. Because this constituent of concern scan does not involve statistical testing, the Discharger need collect and analyze only a single water sample from each monitoring point in the affected medium [27 CCR §20420(k)(1)].
2. The Discharger, **within 90 days** of determining “measurably significant” evidence of a release, shall submit an amended report of waste discharge to establish an evaluation monitoring program meeting the requirements of §20425 of Title 27 [27 CCR §20420(k)(5)].
3. The Discharger, **within 180 days** of determining “measurably significant” evidence of a release, shall submit to the Central Valley Water Board an initial engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [27 CCR §20420(k)(6)].
4. If the Discharger determines that there is “measurably significant” evidence of a release from the WMU at any monitoring point, the Discharger may demonstrate that a source other than the WMU

caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to §20420(k)(7) of Title 27 in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements of §20420(k)(6) & (7) of Title 27 unless the demonstration successfully shows that a source other than the WMU caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In making this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining “measurably significant” evidence of a release. The report shall be submitted to the Central Valley Water Board **within 90 days** of determining “measurably significant” evidence of a release demonstrating that a source other than the WMU caused the evidence [27 CCR §20420(k)(7)].

5. The Discharger, **within 90 days** of establishing an Evaluation Monitoring Program, shall conduct an evaluation monitoring program to assess the nature and extent of the release from the WMU and to design a corrective action program meeting the requirements of §20430 of Title 27. At a minimum, an evaluation monitoring program for a WMU shall include:
 - a. An assessment of the nature and extent of the release from the WMU. This assessment shall include a determination of the distribution and concentration of each constituent of concern throughout the zone affected by the release. The Discharger shall submit this assessment to the Central Valley Water Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(b)].
 - b. Update the initial engineering feasibility study for corrective action based on the data collected to delineate the release and from the ongoing monitoring program. The Discharger shall submit this updated engineering feasibility study to the Central Valley Water Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(c)].

- c. Submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 based on the data collected to delineate the release and on the updated engineering feasibility study. The Discharger shall submit this report to the Central Valley Water Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(d)].

D. **Release Beyond Facility Boundary**

1. Any time the Discharger concludes that a release from the WMU has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
2. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release.
3. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.
4. Each time the Discharger sends a notification to Affected Persons, the Discharger shall provide the Central Valley Water Board, within seven days of sending such notification, with both a copy of the notification and a current mailing list of Affected Persons.

XI. **STANDARD CONDITIONS**

A. **Supervision and Certification**

1. All WMUs shall be **designed and constructed** under the direct supervision of a California registered civil engineer or a certified engineering geologist, as appropriate, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, and performance goals of Title 27 prior to waste discharge.
2. Designs of WMUs shall include a **Construction Quality Assurance Plan**, which shall:

- a. be submitted for review and approval by the Central Valley Water Board prior to construction;
 - b. demonstrate that the WMU has been constructed according to the specifications and plans as approved by the Central Valley Water Board; and
 - c. provide quality control on the materials and construction practices used to construct the WMU and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.
3. **Closure** of each WMU shall be performed under the direct supervision of a California registered civil engineer or California certified engineering geologist.

B. Operations

1. The Discharger shall maintain in **good working order** and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
2. For any **electrically** operated equipment at the site, the **failure** of which could cause loss of control or containment of waste materials, or violation of this Order, the Discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.
3. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.
4. The discharge shall remain within the designated disposal area at all times.
5. By the effective date of waste discharge requirements, the Discharger shall have a plan for preventing and controlling **accidental discharges**, and for minimizing the effect of such events. This plan shall:

- a. Identify the possible sources of accidental loss or leakage of wastes from each waste storage, treatment, or disposal unit.
- b. Evaluate the effectiveness of present WMUs and operational procedures, and identify needed changes or contingency plans.
- c. Predict the effectiveness of the proposed changes in waste management facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

The Central Valley Water Board, after review of the plan, may establish conditions that it deems necessary to control leakage and minimize its effects.

6. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overflowing.
7. Surface impoundments shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the waterline.
8. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.
9. Solids which accumulate in a surface impoundment shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for the surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to the Central Valley Water Board for review. The solids will be discharged to an appropriate WMU based on characterization.
10. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control.

C. Siting

1. New WMUs for Group A and B wastes shall not be located on Holocene faults. Units for Group C wastes may be located on Holocene faults if displacement will not allow escape of wastes or cause irreparable damage to containment structures [27 CCR §22490(a)(1)].
2. New WMUs shall be outside areas of rapid geologic change. Exemptions may be allowed by the RWQCB if containment structures are designed and constructed to preclude failure [27 CCR §22490(a)(2)].
3. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes, and shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

D. Closure

1. New and existing WMUs shall be closed so that they no longer pose a threat to water quality. No post closure land uses shall be permitted that might impair the integrity of containment structures [27 CCR §22510(a)].
2. WMUs shall be closed according to an approved closure and post closure maintenance plan which provides for continued compliance with applicable standards for waste containment, precipitation and drainage controls and monitoring throughout closure and the post closure maintenance period [27 CCR §22510(b)].
3. Closed WMUs shall be provided with at least two **permanent monuments**, installed by a licensed land surveyor or by a registered civil engineer authorized to perform land surveying, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period [27 CCR §20950(d)].
4. Final cover slopes for Group A and Group B waste piles shall not be steeper than a horizontal to vertical ratio of one and three quarters to one, and shall have minimum of one fifteen-foot wide bench for every fifty feet of vertical height [27 CCR §21090(a)].

E. Post-Closure

1. WMUs shall be closed so that they no longer pose a threat to water quality. No post closure land uses shall be permitted that might impair the integrity of containment structures [27 CCR §22510(a)].
2. 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 [27 CCR §22510(h)].
3. The owner of the mine shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the WMUs and during subsequent use of the property for other purposes.

XII. DEFINITIONS

Unless otherwise stated, all terms are as defined in Chapter 2, Division 7, of the California Water Code (Section 13050 et.seq.), in Article 2, Chapter 2, Division 2, Title 27 of the California Code of Regulations (27 CCR §20005 et seq.), and in Section 258.2, and elsewhere in Part 258, Title 40 of the Code of Federal Regulations.

The following additional definitions apply to the Order:

- A. **"Affected Persons"** means all individuals who either own or occupy land outside the boundaries of the parcel upon which the WMU is located that has been or may be affected by the **release** of leachate or waste constituents (in gas or liquid phase) from a WMU.
- B. **"Background Monitoring Point"** means a device (e.g., well) or location (e.g., a specific point along a lakeshore), upgradient or sidegradient from the WMU, or as otherwise approved by the Executive Officer, where water quality samples are taken that are not affected by any release from the WMU and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.
- C. **"Composite liner"** means a liner that consists of two or more components, which include a Synthetic Liner in direct and uniform contact with an underlying layer of prepared, low-permeability soil such that the net permeability of the resulting combination is significantly less

than would be expected by reference to the permeability of the individual components layers.

- D. Unless otherwise specified, “**composite sample**” means a combination of individual samples either collected over a specified sampling period or collected over an area at one time (synoptically):
1. at equal time intervals,
 2. at varying time intervals so that each sample represents an equal portion of the media to be sampled.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results. “**Constituents of Concern (COC)**” means those constituents which are likely to be in the waste in the WMU or which are likely to be derived from waste constituents in the event of a release.

- E. “**Daily maximum concentration**” means the highest measurement made on any single discrete sample or composite sample.
- F. “**Grab sample**” means a discrete sample collected in less than 15 minutes.
- G. “**Matrix effect**” means any change in the method detection limit or practical quantitation limit for a given analyte as a result of the presence of other constituents - either of natural origin or introduced **by** humans as a result of a release or spill - that are present in the sample of water or soil-pore gas being analyzed.
- H. “**Method detection limit (MDL)**” means the lowest constituent concentration associated with a 99% reliability of a “non-zero” analytical result. The MDL shall reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory. MDLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs are expected to closely agree with published USEPA MDLs. If the lab suspects that, due to matrix or other effects, the detection limit for a particular analytical run differs significantly from the laboratory-derived MDL, the results should be flagged accordingly, along with an estimate of the detection limit achieved.
- I. “**Monitoring Parameters**” means the short list of constituents and parameters used for the majority of monitoring activity at a given WMU. Monitoring for the short list of Monitoring Parameters constitutes

“indirect monitoring,” in that the results are used to indicate indirectly the success or failure of adequate containment for the longer list of Constituents of Concern.

- J. **“Monitored Media”** means those water-, solid-, or gas-bearing media that are monitored pursuant to the Monitoring and Reporting Program. The Monitored Media may include:
1. Ground water in the uppermost aquifer, in any other portion of the zone of saturation in which it would be reasonable to anticipate that waste constituents migrating from the WMU could be detected, and in any perched zones underlying the WMU,
 2. Any bodies of surface water that could be measurably affected by a release,
 3. Soil pore liquid beneath and/or adjacent to the WMU, and
 4. Soil pore gas beneath and/or adjacent to the WMU.
- K. **“Monitoring Point”** means a device (e.g., well) or location (e.g., a specific point along a lakeshore), downgradient from the WMU and that is assigned in this Order, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.
- L. **“Monthly average concentration”** means the arithmetic mean of measurements made during the month.
- M. **“Monthly average discharge”** means the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging (e.g. gallons per day, cubic feet per day).
- Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges divided by the number of days during the month when the measurements were made.
- N. **“Order,”** as used throughout this document, means the Waste Discharge Requirements. The Monitoring and Reporting Program and Standard Provisions and Reporting Requirements are incorporated by reference into the Waste Discharge Requirements.
- O. **“Practical quantitation limit (PQL)”** means the lowest constituent concentration at which a numerical concentration can be assigned with

reasonable certainty that its value represents the constituent's actual concentration in the sample. Normally PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure. The PQL shall reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory shall not simply be restated from U.S. EPA analytical method manuals. In relatively interference-free water, laboratory-derived PQLs are expected to closely agree with published U. S. EPA PQLs. If the lab suspects that, due to matrix or other effects, the quantitation limit for a particular analytical run differs significantly from the laboratory-derived PQL, the results should be flagged accordingly, along with an estimate of the quantitation limit achieved.

- P. **"Reporting Period"** means the time interval during which samples are collected and analyzed, and the results then reported to the Central Valley Water Board, to comply with a specified monitoring and reporting frequency. The maximum reporting period for analysis of all Constituents of Concern is five years; for Monitoring Parameters it is six months (generally, Spring/Summer = April 1 to September 30, and Fall/Winter = October 1 to March 31). The Reporting Period for the Annual Summary Report extends from April 1 of the previous year to March 31 of the current year. The due date for the submittal of any given report will be 15 days after the end of its Reporting Period, unless otherwise stated.
- Q. **"Receiving Waters"** refers to any surface or ground water which actually or potentially receives waste constituents, leachate, or surface or ground waters which come in contact with waste materials or contaminated soils.
- R. **"Sample size"**:
1. For Monitoring Points, means the number of data points obtained from a given Monitoring Point during a given Reporting Period used for carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period; or
 2. For Background Monitoring Points, means the number of new and existing data points collected under §20415(e)(11 and 12) from all applicable Background Monitoring Points in a given monitored medium—used to collectively represent the background concentration and variability of a given analyte in carrying out statistical or non-statistical analysis of that analyte during a given Reporting Period.

S. **“Standard Observations”** means:

1. For Receiving Waters:
 - a. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
 - b. Discoloration and turbidity: description of color, source, and size of affected area;
 - c. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - d. Evidence of water uses: presence of water-associated wildlife;
 - e. Flow rate; and
 - f. Weather conditions: wind direction and estimated velocity, total precipitation during recent days and on the day of observation;
2. Along the perimeter of the WMU:
 - a. Evidence of liquid leaving or entering the WMU, estimated size of affected area, and flow rate (show affected area on map);
 - b. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
 - c. Evidence of erosion and/or of daylighted refuse.
3. For the WMU:
 - a. Evidence of ponded water at any point on the waste management facility (show affected area on map);
 - b. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - c. Evidence of erosion and/or of daylighted refuse; and

T. **“Standard Analysis and Measurements”** means:

1. Turbidity, in NTU;

2. Water elevation to the nearest 1/100th foot above mean sea level; and
 3. Sampling and statistical/non-statistical analysis of the Monitoring Parameters.
- U. “**Synthetic Liner**” means a layer of flexible, man-made material that is installed in accordance with the standard of the industry over an area of land prior to the discharge of waste there.
- V. “**VOC_{water}**” (Volatile Organics Monitoring Parameter for Water) means the composite monitoring parameter encompassing all VOCs that are detectable in less than ten percent of applicable background samples from a monitored water-bearing medium (e.g., the unsaturated zone, the uppermost aquifer, a zone of perched groundwater, or a surface water body). This parameter is analyzed via the non-statistical analytical method described elsewhere in this Order to identify a release to waters of the state of VOCs whose presence in background water is detected too infrequently to allow statistical analysis.
- W. “**VOC_{spg}**” (Volatile Organics Monitoring Parameter for Soil Pore Gas) means Monitoring Parameters addressing all volatile organic constituents detectable in a sample of soil pore gas.
- X. “**Volatile organic constituents (VOCs)**” means the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.