

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2017-0077

WASTE DISCHARGE REQUIREMENTS  
FOR  
LEHIGH SOUTHWEST CEMENT COMPANY  
CALAVERAS CEMENT COMPANY  
CALAVERAS CEMENT PLANT  
CALAVERAS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. Lehigh Southwest Cement Company and Calaveras Cement Company (hereafter jointly Discharger or Lehigh), owns and operates the Calaveras Cement Plant (hereafter Calaveras Cement or facility or site) about 2.5 miles south of San Andreas, CA. The Discharger's property is located in the northern parts of Sections 29, 30, 31 and 32, and southern parts of Sections 19 and 20, T4N, R12E, MDB&M. The facility is a Group B mining waste management site regulated under authority given in Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) and the Mining Waste Management Regulations in California Code of Regulations, title 27, section 22470 et seq. (Title 27).
2. Mining activities at the facility were originally regulated by National Pollutant Discharge Elimination System Order No. CA0003891 which regulated the discharge of cooling waters into the Calaveritas Creek. This order was rescinded in 1979 after the Discharger made a material change in the disposal method with the reuse of cooling water. Since mining and processing activities ceased in 1982, the Board has updated Waste Discharge Requirements (WDRs) for closure of this site on three separate occasions: WDRs Orders No. 87-213, 97-011, and 98-095 reflect those periodic updates. This Order supersedes all prior WDRs Orders.
3. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
  - a. Attachment A – Site Location Map
  - b. Attachment B – Site Map
  - c. Attachment C – CKD-1 Groundwater Contours and Groundwater and Surface Water Monitoring Network
  - d. Attachment D – CKD-3 Groundwater Contours and Groundwater and Surface Water Monitoring Network
  - e. Attachment E – CKD-3 Cross Section
  - f. Attachment F – CKD-3 Preliminary Closure Design: Regrade and Cover with Subsurface Drainage

4. The following acronyms are used throughout this Order:

CKD	Cement Kiln Dust
COC	Constituents of Concern
COD	Chemical Oxygen Demand
EC	Electric Conductivity
EFS	Engineering Feasibility Study for Corrective Action
LCRS	Leachate Collection and Removal System
TDS	Total Dissolved Solids
MCL	Maximum Contaminant Level
MRP	Monitoring and Reporting Program
MU	Mining Unit
ROWD	Report of Waste Discharge
TDS	Total Dissolved Solids
WDR	Waste Discharge Requirements
WQPS	Water Quality Protection Standards

5. The facility is located on a 250-acre property at the cross-section of the Pool Station Road and the Cement Plant Road 2.5 miles south of San Andreas as shown on Attachment A. As shown in Attachment B, the facility is comprised of Assessor's Parcel Numbers (APN) 44-001-011, 44-001-012, 44-001-024, 44-001-046, 44-001-47, 44-008-004, 44-008-008, 44-008-009, 44-008-010, 44-008-011, 44-008-024, 44-008-025, 44-008-026, 44-008-027, 44-008-028, 44-008-031, 44-008-032, 44-008-042, 044-008-059, 44-008-064, and 44-008-065.
6. The facility opened in 1926 as the Calaveras Cement Company. It quarried limestone from the Quarry Pit and produced cement for over 50 years. While the facility was in operation from 1926 to 1982, cement kiln dust (CKD) and waste rock were discharged to three cement kiln dust piles (CKD-1, CKD-2, CKD-3) and two waste rock piles (West Rock Storage Area & East Rock Storage Area) shown on Attachments A and B. Cement production ceased in 1983. Manufacturing facilities have since been decommissioned and demolished.
7. These WDRs address the Closure and post-Closure Maintenance of the following mine waste containment facilities (mining units):
  - a. Cement Kiln Dust Pile 1 (CKD-1) shown on Attachments B and C is a Group B mining unit (MU) that was closed pursuant Title 27 requirements in 1998.
  - b. Cement Kiln Dust Pile 3 (CKD-3) shown on Attachments B-F is a Group B MU that is currently in corrective action due to the hexavalent chromium and other constituents of concern identified in surface water and groundwater downgradient of the CKD pile. The Discharger has proposed closure with a low permeability cover and a leachate collection and removal system (LCRS) as shown on Attachment F.
  - c. The former Quarry Pit shown on Attachments A and B is filled with groundwater and has been used for transfer of leachate from CKD-1. Water pumped from the CKD-1

LCRS had been measured as essentially zero through November 2016 after changes and improvements were made to the CKD-1 LCRS during summer 2016. Between mid-December 2016 and mid-March 2017, approximately 300,000 gallons of water per month had been pumped.

- d. The West Waste Storage Area and the East Waste Storage Area as shown on Attachments A and B are waste rock stockpiles, and are both classified as Group C mining waste.
- e. The Calaveras Materials Inc., an aggregate processing facility, is an active subsidiary of Lehigh Southwest Cement Company currently mining rock in the West Rock Storage area as shown on Attachment B.

Constituents of concern within CKD-1 and CKD-3 include high pH, high electrical conductivity (EC), total dissolved solids (TDS), chemical oxygen demand (COD), aluminum, copper, total and hexavalent chromium, lead, molybdenum, manganese, and mercury.

8. On 16 December 2016, the Discharger submitted an updated Report of Waste Discharge (ROWD), which has been used in revising this Order. The ROWD and supporting documents contain proposed facility changes including:
  - a. Conceptual plan and cost estimates for closure of CKD-3;
  - b. Continued removal of leachate from CKD-1 and transfer to the Quarry Pit<sup>1</sup>;
  - c. Future removal of leachate from CKD-3 and transfer to the Quarry Pit<sup>2</sup>;
  - d. Implementation of post-closure maintenance of the site;
  - e. Plans for continued waste rock reuse for aggregate production.
9. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and Monitoring and Reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through H of these WDRs below, and in the Standard Provisions and Reporting Requirements (SPRRs), dated April 2016 included as Attachment G. Monitoring and Reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2017-0077 and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all facilities regulated under Title 27 are considered to be "standard" and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and requirements in the WDRs supersede the requirement in the SPRRs.

---

<sup>1</sup> Following tentative WDR review, Lehigh agreed to discontinue transfer and develop an alternate leachate disposal method in 180 days from adoption of this Order.

<sup>2</sup> Lehigh agreed to develop an alternate leachate disposal method as a part of CKD-3 design plan.

### WASTE CLASSIFICATION AND UNIT CLASSIFICATION

10. The facility consists of five MUs classified as containing either a Group B or Group C mining waste. The mining wastes have been classified as Group B or Group C mining wastes based on an assessment of the potential risk of water quality degradation posed by each waste and in accordance with Title 27, § 22480, which states, in part:

**Group B** – mining waste of Group B is 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 [regional water quality control board] 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

**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.

Group B mining waste can be discharged only at Group B Mining Units which comply with Title 27 Mining Waste Management Regulations and have been approved by the Regional Board for containment of the particular kind of waste to be discharged.

11. The existing MUs authorized by this Order are described as follows:

MU (Size)	Title 27 Waste Classification – Description and COC	Liner/LCRS <sup>1</sup> Components	Status
CKD-1 (16 acres)	<p><u>Group B solid waste:</u> 472,000 cubic yards of highly alkaline cement kiln dust</p> <p><u>Group B liquid waste – leachate</u></p> <p><u>Constituents of concern:</u>                      – pH                      – TDS                      – EC                      – COD                      – Aluminum                      – Total chromium                      – Hexavalent chromium                      – Copper                      – Lead                      – Molybdenum                      – Manganese                      – Mercury</p>	<p><u>Final Cover:</u>                      – One-foot thick vegetative cover                      – One-foot thick compacted layer with a permeability <math>1 \times 10^{-6}</math> cm/s or less                      – Two-foot thick compacted soil foundation layer</p> <p><u>LCRS:</u>                      – Leachate collection trench at the base of the landfill                      – Primary leachate sump</p> <p><u>Base Liner System:</u>                      – 2 feet of compacted CKD</p>	<u>Closed in 1998.</u>

MU (Size)	Title 27 Waste Classification – Description and COC	Liner/LCRS <sup>1</sup> Components	Status
<b>CKD-3</b> (8 acres)	<p><u>Group B solid waste:</u> Estimated 430,000 cubic yards of highly alkaline cement kiln dust</p> <p><u>Group B Liquid waste – leachate:</u></p> <p><u>Constituents of concern:</u>                      – pH                      – TDS                      – EC                      – COD                      – Aluminum                      – Total chromium                      – Hexavalent chromium                      – Molybdenum</p>	<p><u>Final Cover</u> (proposed):                      – High Density Polyethylene (HDPE) or linear low density polyethylene (LLDPE) combined with additional cover, drainage layer (if required), and a vegetative soil layer.</p> <p><u>LCRS</u> (proposed):                      – Leachate collection trenches                      – Pumps</p> <p><u>Base Liner System:</u>                      – None</p>	<p><u>Corrective Action:</u>  <u>Conceptual closure plan</u>                      – Regrade, cover with low permeability cover                      – install LCRS</p>
<b>East Rock Storage Area</b> (18 acres) (previously considered to be a part of CKD-3)	<p><u>Group C solid waste:</u> Waste rock, mostly limestone and dolostone</p> <p><u>Constituents of concern:</u>                      – turbidity</p>	<p><u>Final Cover and Base Liner System:</u>                      – Not required</p>	<p><u>Inactive:</u>                      – Future mining for aggregate</p>
<b>West Rock Storage Area</b> (50 acres)	<p><u>Group C solid waste:</u> Waste rock, mostly limestone and dolostone</p> <p><u>Constituents of concern:</u>                      – turbidity</p>	<p><u>Final Cover and Base Liner System:</u>                      – Not required</p>	<p><u>Active:</u>                      – Current mining for aggregate production by Calaveras Materials Inc.</p>

12. Since the previous WDRs were adopted, the Discharger has completed the following activities at the site:
  - a. Removed CKD from CKD-2 and relocated it to CKD-1.
  - b. Closed CKD-1 pursuant Title 27 requirements in 1998.
  - c. Demolished cement plant buildings and removed waste piles.
  - d. Installed two groundwater monitoring wells (MW-7 and MW-8) and several piezometers (PZ-1 to PZ-7) at CKD-3 as shown on Attachment D.
  - e. Graded CKD-3 top-deck to prevent ponding.
  - f. Constructed a perimeter drainage channel along the east side of CKD-3.
  - g. Completed CKD-3 investigations and prepared a conceptual plan for CKD-3 closure.
  - h. Continued to reuse waste rock for aggregate.

### CKD-1 and CKD-3

13. WDRs Order No. 98-095 classified cement kiln dust left behind by cement production as Group B mining waste. These WDRs continue that classification.
14. The Discharger used a wet production process wherein a mixture of 85% limestone plus shale, sand, and iron ore was crushed and reduced in size by a wet grinding process, then delivered to kilns where the water was evaporated and calcination occurred. This process produced cement clinker, which was then ground to very fine powdered cement. A portion of the kiln dust collected by electrostatic precipitators was recycled into the kilns during operations. Highly alkaline dust collected from the final stage precipitator was removed and stockpiled on the property.
15. CKD consists of a mixture of unreacted raw feed, clinker dust, and ash. Chemically, it consists mainly of calcium carbonate, calcium oxide, silicon dioxide, and other metal-oxides. Its chemically dehydrated nature, resulting from exposure to high kiln temperatures, can cause CKD to have a high tendency to absorb water. The CKD in both CKD-1 and CKD-3 units has been in place for many decades and has been hydrated during that period. Hydration drives the chemical reaction to “harden” cement, and thus the CKD now resembles concrete more than cement. This also makes the material less chemically reactive.
16. During early production, CKD generated onsite was stockpiled at CKD-1 and CKD-2. During reclamation and closure, approximately 72,000 cubic yards of CKD from the former CKD-2 location (see Attachment A) were transferred into CKD-1, as required by WDR Order No. 87-213. CKD-2 was restored and regraded to natural contours. After reclamation, an existing spring-fed stream was reestablished through the CKD-2 location. CKD-1 was closed in accordance with Title 27 requirements in 1998.
17. Closure of the CKD-1 Group B Mining Unit in 1998 served as a corrective action under Article 5 of Chapter 15 (Chapter 15 was a predecessor to Title 27). Groundwater monitoring data at the time Order No. 98-095 was prepared indicated that CKD-1 waste pile had impacted the groundwater by elevating the concentrations of pH, TDS, and several dissolved metals. COC included aluminum (52,000 µg/l), cadmium (32.4 µg/l), chromium (150 µg/l), lead (up to 43.2 µg/l), mercury (3.5 µg/l), and nickel (223 µg/l). Closure of CKD-1 as corrective action was successful and resulted in decrease of concentrations of these COC closer to or below water quality protection standards (WQPS) in groundwater monitoring wells.
18. Significant amounts of CKD were also discharged at CKD-3. A 3-D model presented in the 30 June 2016 *Engineering Feasibility Study for Corrective Action* (EFS) estimates that there are approximately 430,000 cubic yards of CKD in CKD-3. CKD in CKD-3 is a fairly contiguous unit of white to light gray, non-plastic fine grained sediment with relatively high pH (10-12 standard pH units). In some locations, the unit contains some fine to coarse sub angular gravel in a fine grained matrix.

19. Over 10 years ago, CKD-3 was graded and covered with soil to prevent direct exposure and erosion of the CKD. Stormwater best management practices have been maintained to minimize surface water impacts. As shown on Attachment B, CKD is limited to an area of approximately 8 acres in the central and southern portions of CKD-3 top-deck and the lower area upslope from the containment berm; the rest of what was previously considered CKD-3 has been designated in the ROWD as the East Rock Storage Area.
20. EFS investigations of leaching of hexavalent chromium from CKD confirmed that CKD in CKD-3 is the source of hexavalent chromium in the downgradient detection groundwater monitoring well MW-8. Groundwater in MW-8 is also impacted by pH, EC, TDS, COD, and total chromium and molybdenum.
21. This WDRs Order classifies CKD leachate generated by CKD MUs as **Group B** liquid waste based on historical concentrations of COC in groundwater monitoring well MW-4 prior to CKD-1 closure (see Attachment C for MW-4 well location). Monitoring and Reporting Program accompanying WDRs Order No. 98-095 listed groundwater monitoring well MW-4, located at the toe of CKD-1, as a leachate sampling location until the groundwater quality in MW-4 met the established water quality protection standards. Concentrations of COCs representative of the composition of leachate from CKD are based on historical MW-4 data from 1990 to 1998 as follows: pH ranged from 11 to 12; EC from 8,000 to 25,000  $\mu\text{mhos/cm}$ ; COD from 100 to 400  $\text{mg/l}$ ; aluminum from 18,000 to 53,000  $\mu\text{g/g}$ ; total chromium from 20 to 150  $\mu\text{g/g}$ ; and copper from 20 to 120  $\mu\text{g/g}$ .

#### Quarry Pit

22. Calaveras Cement mined limestone from the Quarry Pit to a depth of about 230 feet. After mining ceased, the quarry filled up with groundwater. Estimated storage volume of the Pit is 1,775 acre feet. WDRs Order No. 98-095 allowed leachate from CKD-1 to be transferred and discharged into the Pit. The Discharger proposed in the ROWD to continue to transfer mine waste impacted leachate from MU CKD-1 into the Quarry Pit and to start the transfer of mine waste impacted leachate from MU CKD-3 into the Quarry Pit after closure.
23. After changes and improvements were made to the CKD-1 LCRS during summer 2016, water pumped from the CKD-1 LCRS had been measured as essentially zero through November 2016. During an excessively wet winter between mid-December 2016 and mid-March 2017, approximately 300,000 gallons of water per month had been pumped to the Quarry pit. The Discharger believes this increase is due to the location of the unlined leachate trench near the Calaveritas Creek. The Discharger proposes to correct this issue by separating creek flow from the LCRS trench and requested to develop an appropriate CKD-1 leachate management strategy to be submitted for Board approval within 180 days after adoption of this Order.
24. The Quarry Pit is the former limestone quarry that is filled with groundwater. This groundwater is a water of the State of which the beneficial uses include municipal and domestic water supply agricultural supply, industrial service supply, and industrial

process supply. Thereby, this Order prohibits the discharge of leachate into the Quarry Pit to protect the beneficial uses of groundwater.

25. The Quarry Pit is located in a limestone quarry and contains water that has been in continuous contact with exposed limestone on the pit walls and floor. Limestone influenced waters typically exhibit a near neutral to alkaline pH and slightly elevated TDS and EC levels due to the calcium carbonate nature of the rock. This water quality is unlikely to have adverse environmental impacts because the water quality of the Quarry Pit is demonstrative of the natural contact of water with native, in- place limestone.

Quarry Pit water quality data show EC and TDS values resemble groundwater WQPS. The average post-CKD-1 closure values of EC and TDS for the Quarry Pit are shown in the table below. Surface water WQPS, and groundwater WQPS for CKD-1 and CKD-3 are provided for comparison.

Average Quarry Pit Water Quality Compared to Surface Water and Groundwater WQPS

Constituent	Units	Quarry Pit 1999-2016 Average (SW-3)	Surface water WQPS (SW-1)	CKD-1 Groundwater WQPS	CKD-3 Groundwater WQPS
EC	µmhos/cm	787	373	679	700
TDS	mg/l	583	213	559	255

### Waste Rock Storage Areas

26. During active mining operations, waste rock was discharged into the East and West Rock Storage Areas (see Attachment B). Between 1992 and 2007, waste rock was re-mined for saleable aggregate materials from the East Rock Storage Area forming a large excavation pit on the east side of CKD-3. Oversize materials were sorted and pushed to the side. Useable material was processed by sorting and washing on the top of CKD-3. Approximately 200,000 tons of waste rock was removed from East Rock Storage Area during this period.
27. Current aggregate operations conducted by Calaveras Materials Inc., a subsidiary of Lehigh Southwest Cement Company, is mining and processing waste rock in the West Rock Storage Area for saleable materials (see Attachment B). The Discharger plans to continue this operation and move it to the East Waste Rock Storage Area after the West Waste Rock Storage Area is mined out. This order acknowledges the Discharger's plans to continue to mine and process waste rock at the site.
28. This WDR Order concurs with the Discharger's Mining Waste Characterization Report for Calaveras Materials Inc. Aggregate Mining Operation included in the ROWD which proposes Group C classification for waste rock in the East and West Rock Storage Areas and haul-back cement processed at the aggregate mining operation. The results of the acid-base accounting analysis (ABA) indicated that the acid neutralization potential of limestone waste rock samples far exceeds the acid generation potential. The concentrations of total and leachable metals in waste rock remained below regulatory



thresholds and in most cases below water quality objectives. Dissolved barium and chromium concentrations were slightly above the primary MCL for drinking water for the two haul-back cement samples. The report suggests that the haul-back cement pile is temporary and unlikely to cause degradation to waters of the state.

### **SITE DESCRIPTION**

29. The site is located in the foothills west of the high mountains of the Sierra Nevada and east of the Central Valley. Surface waters from the facility drain to the Calaveritas Creek and the South Fork of the Calaveras River which flows to the Calaveras River thence to the San Joaquin River.
30. Land uses within one mile of the facility include agricultural preserve, rural residential, single and multiple family residential, general commercial, light industrial, and general industrial.
31. According to public resources available from the Calaveras County and United States Geological Survey, there are no municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the facility.
32. The geology of the area is structurally complex and is situated in the westerly portion of the Foothills Fault System, which is characterized by strong strike-faulting and shearing which has resulted in a series of prominent northwestward trending ridges underlain by metamorphic rocks that are folded and faulted. In addition, numerous granitic intrusions have occurred. The eastern portion of the valley is underlain by Paleozoic sedimentary rocks, and greenschist rocks. Primary lithologies in the site vicinity include Paleozoic metasedimentary rocks including quartzite, pelitic schist, limestone, and dolostone, as well as the Calaveras Complex consisting mainly of interbedded limestone, recrystallized limestone and dolostone. Foliation of the bedrock is generally oriented in a northwest-southeast direction with nearly vertical bedding, as are the major faults in the area. The bases of the valleys are covered by alluvial sediments situated on bedrock. The bedrock is characterized by a weathered zone which can extend to depths of 20 to 50 feet or more below the original metamorphic contact with alluvial sediment. The alluvial sediments in the facility vicinity tend to be shallow.
33. The facility receives an average of 28.5 inches of precipitation per year as determined from the isohyetal map of 30-year (1981-2010) average rainfall information obtained from Prism Climate Group, Oregon State University. The 100-year wet season was calculated to be 59.98 inches based on data from the historical records obtained from the Department of Water Resources DWR for the San Andreas 2S Station (B20 7702 00) located approximately 1.8 miles from the Site. The mean pan evaporation is 55.9 inches per year as measured at the Plymouth Station (Station ID 227).
34. The site lies partially within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 06009C040W. The lowermost edges of CKD-1 and CKD-3 are located adjacent to and may slightly encroach upon the 100 year floodplain of Calaveritas Creek.

## **SURFACE WATER AND GROUNDWATER CONDITIONS**

35. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition*, revised April 2016 (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
36. Surface water drainage from the site is to Calaveritas Creek thence to the South Fork Calaveras River which drains to the Calaveras River which is a tributary to the San Joaquin River and the Sacramento-San Joaquin Delta.
37. The Basin Plan does not specifically identify designated beneficial uses for the Calaveritas Creek and the South Fork Calaveras River, but it does identify the existing beneficial uses for the Calaveras River from the source to the New Hogan Reservoir, which also apply to all upstream tributaries (Basin Plan, page II-2.00). These existing beneficial uses are Water Contact Recreation; Non-contact Water Recreation; Warm Freshwater Habitat; Cold Freshwater Habitat; Migration of Aquatic Organisms, Warm; Spawning, Reproduction, and/or Early Development; and Wildlife Habitat. The beneficial uses of the Sacramento-San Joaquin Delta are: Municipal and Domestic Supply; Agricultural Supply; Industrial Process Supply; Industrial Service Supply; Water Contact Recreation; Non-contact Water Recreation; Warm Freshwater Habitat; Cold Freshwater Habitat; Migration of Aquatic Organisms; Spawning, Reproduction, and/or Early Development; Wildlife Habitat; and Navigation.
38. At CKD-1, the first encountered groundwater occurs at approximately 80 feet below the surface at the upslope boundary of the unit and at approximately 10 feet below the surface at the toe of the unit. Groundwater elevation measurements from the piezometers and wells and the groundwater contours shown on Attachment C indicate the groundwater gradient in the vicinity is generally to the northwest toward the Kentucky House Reservoir. The estimated average groundwater gradient is 0.02 feet per foot. Groundwater elevation data show that the base of the waste material is not in contact with groundwater beneath CKD-1.
39. The canyon where CKD-3 is located forms a small groundwater sub-basin with a drainage area of approximately 130 acres. The valley does not appear to be hydraulically connected to areas east, west, and north of CKD-3. Depths to groundwater range between 4.4 feet below ground surface along the southern toe of CKD-3 to 91.6 feet below ground surface on top of CKD-3. Groundwater is monitored in a number of wells and piezometers which are screened in alluvium, CKD, or underlying bedrock, depending on their location in relation to the unit. As shown on attachment D, groundwater elevation measurements from the piezometers and wells in the vicinity of CKD-3 indicate the groundwater gradient in the vicinity is generally to the south. The estimated average groundwater gradient is 0.11 feet per foot following topography.

The Discharger states that groundwater downgradient of CKD-3 exists in two chemically different aquifers. A shallow aquifer, approximately 20 feet deep and apparently ending just downgradient from MW-8, shows influence from CKD-3. Sample results from a

discrete hydro-punch sample identified a deeper water bearing zone below 20 feet, which apparently extends down the CKD-3 valley shows no sign of impact from CKD-3.

Attachment E shows that groundwater is present in CKD-3. There is evidence of a seepage area at the southern toe of CKD-3. The small amount of seepage flows into the unnamed drainage channel in the canyon in which CKD-3 is situated.

40. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

### **GROUNDWATER AND SURFACE WATER MONITORING**

41. The existing groundwater monitoring network for CKD-1 consists of upgradient background monitoring well MW-9, detection/corrective action monitoring wells MW-4 and MW-6, and groundwater elevation monitoring well MW-2 as shown on Attachment C and detailed in MRP R5-2017-0077. MW-4 and MW-6 are located directly downgradient of the unit. MW-4 monitors the first encountered groundwater, and MW-6 monitors a deeper water bearing zone. This existing groundwater monitoring network at CKD-1 is not sufficient to monitor the groundwater flow, direction, and water quality. This Order requires the Discharger to add a minimum of one additional groundwater monitoring well to the CKD-1 Mining Unit.
42. The existing groundwater monitoring network for CKD-3 consists of upgradient background monitoring well MW-7, a downgradient detection/corrective action monitoring well MW-8, and seven piezometers to monitor groundwater elevations (PZ-1 to PZ-7) as shown on Attachment D and detailed in MRP R5-2017-0077.
43. Surface water monitoring at the Site occurs at the following locations, as shown on Attachments B-D and detailed in MRP R5-2017-0077:
  - a. SW-1 is located in Calaveritas Creek upstream from CKD-1 and upstream of where the un-named drainage below CKD-3 would join with Calaveritas Creek. SW-1 is representative of background water quality conditions for Calaveritas Creek.
  - b. SW-2 is located downstream from CKD-1 in Calaveritas Creek.
  - c. SW-3 is the Quarry Pit water.
  - d. SW-4 is located in the retention pond on the surface of the lower deck of CKD-3.
  - e. SW-5 is located in the upstream portion of the runoff diversion ditch around the northeast of CKD-3 and represents background surface water conditions for CKD-3.
  - f. SW-6 is located in the Calaveritas Creek upstream from CKD-1 and downstream of the location where the unnamed drainage would flow into Calaveritas Creek.
44. The Discharger submitted Water Quality Protection Standards (WQPS) reports on 31 July 2000, 31 March 2005, and 15 September 2006, proposing statistical data analysis methods to calculate concentration limits for each monitored constituent in

accordance with Title 27. The WQPS report proposed to use intrawell data analysis to calculate tolerance limits for the monitored constituents. The WQPS and approved data evaluation methods are included in MRP R5-2017-0077.

## **GROUNDWATER DEGRADATION AND CORRECTIVE ACTION**

### **CKD-1**

45. Closure of the CKD-1 Group B Mining Unit in 1998 served as a corrective action under Article 5 of Chapter 15. Chapter 15 was the predecessor to Title 27. Groundwater monitoring data at the time Order No. 98-095 was prepared indicated that CKD-1 waste pile has impacted the groundwater by elevating the concentrations of pH, TDS, and several dissolved metals. Constituents of concern included aluminum (52,000 µg/l), cadmium (32.4 µg/l), chromium (150 µg/l), lead (up to 43.2 µg/l), mercury (3.5 µg/l), and nickel (223 µg/l). Closure of CKD-1 resulted in gradual decrease of the concentrations of these COCs in groundwater monitoring wells.
46. In 2015, following the review of MRP reports, staff requested an investigation into the causes of increasing volumes of leachate removed from CKD-1 and the exceedances of several COCs in compliance groundwater monitoring wells MW-4 and MW-6. The Discharger's CKD-1 investigation report submitted on 2 February 2016 did not find conclusive evidence for a potential release from the unit, but found evidence for partial erosion of the cover system and problems with the integrity of LCRS. The Discharger repaired the erosion of the cover, investigated the integrity of LCRS and proposed and completed modifications to LCRS. The Discharger discontinued pumping from secondary sump to the main collection sump and reconfigured and replaced the flow measurement and recording system.
47. However, as shown by the 2016 Annual Monitoring Report, the exceedances of several COCs in the compliance groundwater monitoring wells continue to exceed their respective WQPS. These include TDS, EC, COD, total and hexavalent chromium, and copper.

### **CKD-3**

48. At the time Order No. 98-095 was prepared, the Discharger was investigating the nature, volume, and extent of the material in CKD-3. After initial investigations, two groundwater monitoring wells and seven piezometers were installed at the unit as shown in Attachment D. Dissolved molybdenum and hexavalent chromium analyses were added to the monitoring parameters list for surface and groundwater on 2 January 2001.
49. After the 2014 monitoring report review which indicated CKD-3 may have impacted groundwater and surface water downgradient from the unit, staff requested that the Discharger evaluate and interpret monitoring data to ascertain whether they show a measurably significant evidence of a potential release.

50. On 16 December 2014, the Discharger submitted notification of a measurably significant evidence of a release from CKD-3 observed in the monitoring data. TDS, pH, aluminum, total chromium, hexavalent chromium, and molybdenum concentrations in groundwater in compliance well MW-8 exceeded WQPS. Historical MRP surface water monitoring data indicated periodic WQPS exceedances at SW-6 for EC, TDS, molybdenum, and manganese.

The Discharger submitted a partial *Amended Report of Waste Discharge* on 17 February 2015 and an *Engineering Feasibility Study (EFS) for Corrective Action* on 30 June 2016. The EFS was amended on 28 September 2016. Staff concurred with the conceptual closure plan for CKD-3 on 6 October 2016 and requested submittal of detailed closure technical design plans and construction quality assurance (CQA) plans in compliance with Title 27 siting and construction requirements for Group B waste. The design plans for CKD-3 are due within 180 days of adoption of these WDRs.

51. The Discharger is proposing to close CKD-3 with a low permeability cover system as shown in Attachment F. Currently, it is projected that the low-permeability cover will consist of an impermeable geomembrane such as high density polyethylene (HDPE) or linear low density polyethylene (LLDPE) and a soil and/or rock cover layer. Additional analyses will be completed to determine the type and thickness of additional cover components such as a bedding layer, drainage layer (if required), and vegetative soil layer.
52. The proposed CKD-3 LCRS will consist of a collection trench along the lower deck of CKD-3 to allow interception of seepage. The leachate shall be pumped to appropriate container(s) and either disposed offsite, or treated on-site and discharged to land under an appropriate discharge to land permit or general order. As included in the Prohibitions Section, this Order prohibits the discharge of leachate or any waste to the Quarry Pit.
53. Proposed calculations to support the final design will include completion of the Revised Universal Soil Loss Equation to verify that cover erosion is not excessive, slope stability analyses to confirm that the proposed grades are stable under static and dynamic loading, and completion of hydraulic calculations for surface water controls to verify they can convey the minimum design storm of a 100-year, 24 hour storm.

#### **CLOSURE AND POST-CLOSURE MAINTENANCE OF MINING UNITS**

54. The Discharger included preliminary closure of CKD-3 and post-closure monitoring and maintenance for CKD-1 and CKD-3 information in the December 2016 ROWD. Conceptual design for closure of CDK-3 is outlined in the Groundwater and Corrective Action section.
55. Post-closure maintenance plans for CKD-1 and CKD-3 include inspection and monitoring activities for 30 years after the closure of entire site or until the site is no longer a threat to water quality.

## FINANCIAL ASSURANCES

56. California Code of Regulations Title 27, section 22510 requires the discharger to provide for adequate funding to pay for the costs of closure and post closure maintenance as required by this article. The discharger shall provide assurance of financial responsibility, acceptable to the regional water quality control board, pursuant to Chapter 6 of this title, and the regional water quality control board shall periodically review financial assurances and shall modify them as necessary. The Discharger's 16 December 2016 ROWD included a CKD-3 Preliminary Closure and Post Closure Maintenance Plans for CKD-1 and CKD-3 (PC/PCMP) for closure and post closure maintenance for CKD-1, CKD-3, and the Quarry Pit. The PC/PCMP includes a cost estimate for CKD-3 closure in the amount of **\$1,125,687 in 2016 dollars** and the post-closure costs for 30 years in the amount of **\$2,440,339 in 2016 dollars**. As of 2016, the balance of the closure fund was **\$3,566,026**. Staff concurs with these closure and post-closure cost estimates for CKD-1 and CKD-3. Future financial assurances need to include all mining units. This Order requires that the Discharger maintain financial assurance with the Central Valley Water Board in at least the amount of the closure cost estimate.

## CEQA AND OTHER CONSIDERATIONS

57. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, section 15301.
58. This order implements:
- *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition.*
  - The prescriptive standards and performance goals of California Code of Regulations, Title 27, Mining Waste Management Regulations, section 22470 et seq.
59. Based on the threat and complexity of the discharge, the facility is determined to be classified **2B** as defined below:
- Category 2 threat to water quality**, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
- Category B complexity**, defined as, "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."
60. 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 discharged 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 regional 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.”

61. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2017-0077" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

### PROCEDURAL REQUIREMENTS

62. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
63. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
64. Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:  
[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)  
or will be provided upon request.

**IT IS HEREBY ORDERED**, pursuant to California Water Code sections 13263 and 13267, that **WDRs Order No. 98-095** is rescinded except for purposes of enforcement, and that Lehigh Southwest Cement Company and Calaveras Cement Company, their 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, designated waste, and mining waste is prohibited other than as described in these WDRs. For the purposes of this Order, the terms hazardous waste, designated waste, and mining waste are as defined in California Code of Regulations Title 27.

2. Other than materials from the sand and gravel or asphalt concrete operations to be recycled at the Calaveras Materials Inc., the discharge or deposit of waste from any other sources is prohibited. Processing<sup>3</sup> recycled materials such as cured concrete or asphalt pavement, which can be used to produce saleable materials, is consistent with the existing activities at the site, and is acceptable.
3. Discharge of processing water and separated solids produced at the Calaveras Materials Inc. to surface water or surface water drainage courses is prohibited.
4. The discharge or transfer of leachate, or any liquid or solid waste to the Quarry Pit is prohibited.
5. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Standard Provisions and Reporting Requirements dated April 2016 (SPRRs).

## **B. DISCHARGE SPECIFICATIONS**

1. The discharge shall not cause a condition of pollution or nuisance as defined by Water Code section 13050.
2. The discharge shall not cause degradation of any water supply.
3. The Discharger shall use best management practices for management of process water and temporary discharges of materials to be recycled at the Calaveras Materials Inc. to prevent surface water and groundwater degradation.
4. The Discharger shall maintain site security throughout the closure period. Perimeter fences, locked gates and signs shall be maintained to exclude public entry to the site. Locks, gates, signs and fences shall be inspected quarterly; damaged security features shall be repaired or replaced immediately.
5. The Discharger shall comply with all Standard Discharge Specifications listed in Section *D of the SPRRs dated April 2016*.

## **C. FACILITY SPECIFICATIONS**

1. Annually, prior to the anticipated rainy season but no later than **15 October**, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed and reported in compliance with MRP R5-2017-0077.
2. The Discharger shall expand their existing Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements in accordance with State Water Board

---

<sup>3</sup> Processing includes receiving, storage, and the physical manipulation required to manufacture saleable products. Physical manipulation may include crushing, washing to remove fines, and screening. Processing also includes accepting uncured Portland cement or concrete, or washout from uncured Portland cement or concrete handling equipment (includes mixer trucks, pumps, concrete molds, etc.).



Order No. 2014-0057-DWQ (Industrial General Permit) or most recent general industrial storm water permit) to cover the entire site, or retain all storm water on-site.

3. The Discharger shall comply with all Standard Discharge Specifications listed in Section E of the SPRRs dated April 2016.

### **CKD-1 and CKD-3**

4. The Discharger will develop an appropriate CKD-1 leachate management strategy to be submitted for Board approval within 180 days after adoption of this Order. In the interim period for 180 days after these WDRs are adopted, the Discharger will be required to monitor the level of leachate in the CKD-1 LCRS, but will not be required to pump or transfer the accumulated leachate into containers for disposal.
5. CKD-3 shall be closed per Title 27 requirements after all applicable construction quality assurance plans have been approved by Executive Officer.
6. The Discharger will develop an appropriate CKD-3 leachate management strategy as a part of CKD-3 closure design plans to be submitted for Board approval within 180 days after adoption of this order.

### **D. DESIGN AND CONSTRUCTION SPECIFICATIONS**

1. Mining units shall be designed and constructed pursuant Title 27, Section 22470 et seq. requirements.
2. Containment structures and precipitation and drainage control systems shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, and washout under 100-year, 24-hour precipitation conditions.
3. Mining units shall be designed, constructed and operated to prevent inundation or washout due to flooding events with a 100-year return period.
4. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over their operating life.
5. Materials used to construct LCRSs shall have appropriate physical and chemical properties to ensure the required transmission of leachate.
6. The LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the Mining Unit. The LCRS extraction system shall be capable of removing this volume of leachate.
7. The depth of the fluid in any LCRS sump shall be kept at the minimum needed for safe pump operation without excessive pump cycling that could damage the pump.

8. The Discharger shall submit a design report including plans, specifications, and a construction quality assurance plan for review and approval prior to construction work related to the MU containment and cover systems.
9. The Discharger shall submit a final report documenting construction work related to the MU containment systems and cover for review and approval.
10. The Discharger shall comply with all Standard Design and Construction Specifications listed in Section F of the SPRRs dated April 2016.
11. The Discharger shall comply with all Storm Water Provisions listed in Section L of the SPRRs dated April 2016.

#### **E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS**

1. The eight-acre MU CKD-3 closure design shall consist of a low permeability cover, LCRS, and stormwater controls. The unit shall be graded and closed pursuant to Title 27 requirements. Prior to construction, the Discharger shall submit Design Report with construction drawings and specifications. All applicable construction quality assurance plans shall be approved in writing by the Executive Officer.
2. The Discharger shall comply with all Closure and Post-Closure Maintenance Specifications listed in Section G of the SPRRs dated April 2016.

#### **F. FINANCIAL ASSURANCE**

1. By **1 June 2018**, pursuant to Title 27, the Discharger shall establish an irrevocable acceptable financial mechanism as specified in Title 27, Section 22228 in the amount of **\$3,566,026 in 2016 dollars** for **closure and post-closure fund** with the Central Valley Water Board named as beneficiary. The issuing institution shall become liable under the terms of the financial mechanism if the Executive Officer determines that the Discharger has failed or is failing to perform closure or post-closure maintenance or corrective action activities as guaranteed by the mechanism in a timely manner. Prior to any exercise of remedies, Central Valley Water Board staff will provide the Discharger with written notice of the Discharger's noncompliance with any provisions of these WDRs.
2. By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the closure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation.
3. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the SPRRs dated April 2016.

## **G. MONITORING SPECIFICATIONS**

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program (MRP) R5-2017-0077, and the Standard Monitoring Specifications listed in Section I of the SPRRs dated April 2016.
2. The Discharger shall, for any mining unit in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP R5-2017-0077, and the Standard Monitoring Specifications listed in Section I of SPRRs dated April 2016.
3. The Discharger shall comply with the Water Quality Protection Standards for surface water and groundwater as specified in this Order, MRP R5-2017-0077, and the SPRRs dated April 2016.
4. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the mining unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP R5-2017-0077.
5. For each monitoring event, the Discharger shall determine whether the mining unit is in compliance with the Water Quality Protection Standards using procedures specified in MRP R5-2017-0077 and the Standard Monitoring Specifications in Section I of the SPRRs dated April 2016.
6. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the SPRRs dated April 2016.

## **H. PROVISIONS**

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated April 2016, which are attached hereto and made part of this Order by reference. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. Pursuant to Water Code section 13267, the Discharger shall comply with Monitoring and Reporting Program R5-2017-0077, which is attached to and made part of this Order. A violation of Monitoring and Reporting Program R5-2017-0077 is a violation of these waste discharge requirements.
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 of leachate discharged into the Quarry Pit. These records shall be available for review by representatives of the Central Valley Water Board and of the State Water Resources Control Board, and copies of these records shall be sent to the Central Valley Water Board upon request.
5. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
6. The Discharger shall immediately notify the Central Valley Water Board 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 precipitation and drainage control structures.
7. In the event of any change in control or ownership of the facility or disposal areas, 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 this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of General Provision K.2.e in the Standard Provisions and Reporting Requirements and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
8. The Discharger shall provide proof to the Central Valley Water Board **within sixty days after completing final closure** that the deed to the facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
  - a. The parcel has been used for disposal of wastes.
  - b. Land use options for the parcel are restricted in accordance with post-closure land uses set forth in any post-closure plan (if applicable).
  - c. In the event that the Discharger defaults on carrying out either any corrective action needed to address a release, groundwater monitoring, or any post-closure maintenance (if applicable), then the responsibility for carrying out such work falls to the property owner.
9. 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.

10. The following reports and work plans shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared by a California-registered civil engineer or certified engineering geologist:

<u>Task</u>	<u>Compliance Date</u>
<p><b>A. Updated Sample Collection and Analyses Plan</b></p> <p>Submit an updated Sample Collection and Analyses Plan for groundwater, surface water, and leachate water quality monitoring and reporting.</p>	<p><b>31 August 2017</b></p>
<p><b>B. Workplan for an Additional Groundwater Monitoring Well and an Additional Surface Water Sampling Point</b></p> <p>Submit a work plan to install an additional detection groundwater monitoring well at CDK-1. The workplan shall also identify an additional surface water monitoring point in the drainage west and downstream of the Calaveras Material Inc. settling pond.</p>	<p><b>31 August 2017</b></p>
<p><b>C. CKD-3 Design Report with Construction Drawings and Specifications and Construction Quality Assurance Plans</b></p> <p>Submit a design report with construction drawings and specifications and construction quality assurance plan for review and approval (see all Construction Specifications in Section D, above and Section F of the SPRRs.). The report shall include a proposal for construction of a new compliance groundwater monitoring well. The Discharger will submit updates 60 and 120 days after the adoption of this Order.</p>	<p><b>Within 180 days after the adoption of this Order</b></p>
<p><b>D. CKD-1 Leachate Management Plan</b></p> <p>Submit the results of CKD-1 investigations and an alternate leachate management plan.</p>	<p><b>Within 180 days after the adoption of this order</b></p>

<u>Task</u>	<u>Compliance Date</u>
<p><b>E. Complete Closure of MU CKD-3 and Submit Final Closure Construction Quality Assurance Report</b></p> <p>Complete closure of CKD-3 and submit a construction quality assurance (CQA) report for review and approval upon completion demonstrating construction was conducted in accordance with approved construction plans (see Standard Construction Specifications in Section F of the SPRRs).</p>	<p><b>31 December 2018</b></p>
<p><b>F. Final Closure and Post-Closure Maintenance Plan</b></p> <p>Submit an Updated Final Closure and Post-Closure Maintenance Plan including inspection, maintenance, and monitoring of the facility during the post-closure maintenance period, a post-closure maintenance cost estimate for the entire facility including Calaveras Materials Inc., and proof of the post-closure fund mechanism with the Central Valley Water Board listed as a beneficiary as detailed in Financial Assurances F.1. The plan will be implemented for a minimum period of 30 years or until the waste no longer poses a threat to water quality, whichever is greater.</p>	<p><b>31 March 2019</b></p>

11. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.

12. This Order shall take effect upon the date of adoption.

13. The Discharger shall comply with all General Provision listed in Section K of the SPRRs dated April 2016.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 9 June 2017.

ORIGINAL SIGNED BY  
 PAMELA C. CREEDON, Executive Officer

NJV/WMH

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2017-0077  
FOR

LEHIGH SOUTHWEST CEMENT COMPANY0077  
CALAVERAS CEMENT COMPANY  
CALAVERAS CEMENT PLANT  
CALAVERAS COUNTY

This monitoring and reporting program (MRP) is issued to Lehigh Southwest Cement Company and Calaveras Cement Company (Discharger), pursuant to California Water Code section 13267 and incorporates requirements for groundwater and surface water monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, Title 27 (hereafter Title 27), Waste Discharge Requirements (WDRs) Order R5-2017-0077, and the Standard Provisions and Reporting Requirements dated April 2016 (SPRRs).

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**

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and surface water in accordance with Standard Monitoring Specifications in SPRRs.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, leachate, Quarry Pit water, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables 1 through 5.

The Discharger shall use USEPA test methods with the lowest achievable detection limit for that constituent taking any matrix interferences into account. The reporting limit shall be no higher than the practical quantitation limit. The Discharger shall report all trace concentrations that are between the detection limit and the practical quantitation limit. All metals analyses shall be for dissolved metals.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Surface Water Monitoring
A.3	LCRS Monitoring and Annual LCRS Testing
A.4	Facility Monitoring

**1. Groundwater Monitoring**

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27.

The current groundwater monitoring network consists of the following:

<u>Well</u>	<u>Status</u>	<u>Zone</u>	<u>Units Being Monitored</u>
MW-9	Background	Shallow	CKD-1
MW-4	Detection/Corrective Action	Shallow	CKD-1
MW-6	Detection/Corrective Action	Deep	CKD-1
MW-7	Background	Shallow	CKD-3
MW-8	Detection/Corrective Action	Shallow	CKD-3

Groundwater monitoring well MW-2 near CKD-1 and piezometers PZ-1 through PZ-7 are used to measure groundwater elevation. Groundwater monitoring well MW-3 is not being utilized in the current groundwater monitoring network.

The current groundwater monitoring detection monitoring system does not meet the requirements of Title 27, sections 20415 and 20420. The current groundwater detection monitoring systems for CKD-1 is inadequate to evaluate the distribution of potential contamination in groundwater. The Provisions Section of the WDRs requires the Discharger to install an additional detection groundwater monitoring well in a location that will allow more accurate spatial assessment of groundwater flow, gradient, and water quality. The Discharger shall add all new monitoring points to the site groundwater monitoring network.

Groundwater samples shall be collected semiannually from the background wells, detection monitoring wells, and any additional monitoring points added as part of the approved groundwater monitoring system. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan. Depth to groundwater shall be



measured to the nearest 0.01 feet.

Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table:

<b>Table 1: Groundwater Monitoring</b>			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Groundwater Elevation	Ft. & hundredths, MSL	Quarterly <sup>1</sup>	Semiannually
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Lab pH	pH units	Semiannually	Semiannually
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Total Alkalinity	mg/L	Semiannually	Semiannually
Chemical Oxygen Demand	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Calcium	mg/L	Semiannually	Semiannually
Sodium	mg/L	Semiannually	Semiannually
Magnesium	mg/L	Semiannually	Semiannually
Aluminum	µg/L	Semiannually	Semiannually
Cadmium	µg/L	Semiannually	Semiannually
Chromium, Total	µg/L	Semiannually	Semiannually
Chromium, Hexavalent	µg/L	Semiannually	Semiannually
Copper	µg/L	Semiannually	Semiannually
Iron	µg/L	Semiannually	Semiannually
Lead	µg/L	Semiannually	Semiannually
Mercury	µg/L	Semiannually	Semiannually
Nickel	µg/L	Semiannually	Semiannually
Manganese	µg/L	Semiannually	Semiannually
Molybdenum	µg/L	Semiannually	Semiannually

<sup>1</sup> The Discharger shall measure the groundwater elevation in each well and each piezometer **quarterly**, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost water bearing zone and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

## 2. Surface Water Monitoring

The Discharger shall operate a surface water detection monitoring system for any facility where runoff from mining unit areas flows or could flow to waters of the United States. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420.

- a. Runoff from CKD-1 areas flows to plunge pools at the base of the unit and periodically discharges into the Calaveritas Creek.
- b. Runoff from CKD-3 flows to a retention basin at the toe of the unit that periodically discharges into the unnamed drainage.

The current surface water monitoring points for the facility are:

<u>Monitoring Points</u>	<u>Status/Location</u>
SW-1	Background/Upstream from the Site
SW-2	Detection/Downstream from CKD-1
SW-3	Detection/Quarry Pit water
SW-4	Detection/Retention Pond at the toe of CKD-3
SW-5	Background/Upstream from CKD3
SW-6	Detection/Calaveritas Creek downstream from CKD-3 and upstream from CKD-1

The discharger shall identify another surface water monitoring point in the unnamed drainage downstream from the Calaveras Material Inc. settling pond and add it to the surface water monitoring network.

For surface water detection monitoring, a sample shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in Table 3.

<b>Table 3: Surface Water Monitoring</b>			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Lab pH	pH units	Semiannually	Semiannually
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Total Alkalinity	mg/L	Semiannually	Semiannually
Chemical Oxygen Demand	mg/L	Semiannually	Semiannually
Aluminum	µg/L	Semiannually	Semiannually
Cadmium	µg/L	Semiannually	Semiannually
Chromium, Total	µg/L	Semiannually	Semiannually
Chromium, Hexavalent	µg/L	Semiannually	Semiannually
Copper	µg/L	Semiannually	Semiannually
Iron	µg/L	Semiannually	Semiannually
Lead	µg/L	Semiannually	Semiannually
Mercury	µg/L	Semiannually	Semiannually
Nickel	µg/L	Semiannually	Semiannually
Manganese	µg/L	Semiannually	Semiannually
Molybdenum	µg/L	Semiannually	Semiannually

### 3. LCRS Monitoring and Annual LCRS Testing

**LCRS Monitoring:** The Discharger shall operate and maintain leachate collection and removal system (LCRS) sumps, record removed leachate volumes, and conduct annual testing of each LCRS component in accordance with Title 27 and this monitoring program.

The Discharger will develop an appropriate CKD-1 leachate management strategy to be submitted for Board approval within 180 days after adoption of the WDRs. In the interim period for 180 days after these WDRs are adopted, the Discharger will be required to monitor the level of leachate in the CKD-1 LCRS, but will not be required to pump or transfer the accumulated leachate into containers for disposal.

The current and future LCRS leachate sump monitoring points are:

<u>Monitoring Point</u>	<u>Unit Where Sump is Located</u>
CKD-1 Primary	CKD-1
CKD-3	CKD-3 after closure

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with the following table. Leachate shall be analyzed as specified below.

<b>Table 5: LCRS Monitoring</b>			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>			
Presence of Leachate	observation	Monthly	Semiannually
Leachate Volume <sup>1</sup>	gallons/day	Monthly	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<b>Monitoring Parameters</b>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Total Alkalinity	mg/L	Semiannually	Semiannually
Chemical Oxygen Demand	mg/L	Semiannually	Semiannually
Aluminum	µg/L	Semiannually	Semiannually
Cadmium	µg/L	Semiannually	Semiannually
Chromium, Total	µg/L	Semiannually	Semiannually
Chromium, Hexavalent	µg/L	Semiannually	Semiannually
Copper	µg/L	Semiannually	Semiannually
Iron	µg/L	Semiannually	Semiannually
Lead	µg/L	Semiannually	Semiannually
Mercury	µg/L	Semiannually	Semiannually
Nickel	µg/L	Semiannually	Semiannually
Manganese	µg/L	Semiannually	Semiannually
Molybdenum	µg/L	Semiannually	Semiannually

<sup>1</sup> Volume of removed leachate gallons per day from the LCRS.

**Annual LCRS Testing:** All LCRSs shall be tested annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The Discharger proposes an alternative LCRS inspection and testing approach and will submit it with the CKD-3 design plans. This approach will have the goals of regularly assessing the proper function of an LCRS, identifying any deficiencies, correcting any deficiencies, and reporting this information. The results of these tests shall be reported to the Central Valley Water Board in the Annual Monitoring Report and shall include comparisons with earlier tests made under comparable conditions.

#### 4. 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 liner systems; LCRS pumps, piping and control systems; drainage control

systems; groundwater monitoring wells; unsaturated zone monitoring systems; and shall assess preparedness for winter conditions including but not limited to the required mining unit 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.3 of this MRP.

b. **Major Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all mining unit berms for damage **within 7 (seven) days** following major storm events capable of causing damage or significant erosion. 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.4 of this MRP.

**B. REPORTING**

The Discharger shall submit the following reports in accordance with the required schedule:

**Reporting Schedule**

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	<b>1 August, 1 February</b>
B.2	Annual Monitoring Report	31 December	<b>1 February</b>
B.3	Annual Facility Inspection Report	31 October	<b>15 November</b>
B.4	Major Storm Event Reporting	Continuous	<b>7 days from damage discovery</b>
B.5	Financial Assurances Report	31 December	<b>1 June</b>

**Reporting Requirements**

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order R5-2017-0077 and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release").

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 waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27.

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

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. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:
  - a) For each groundwater monitoring point addressed by the report, a description of:
    - 1) The time of water level measurement;

- 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
  - 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
  - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
  - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
- b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
  - c) The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].
  - d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, LCRS/leachate, surface water, and the Quarry Pit. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables 1 through 5 unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
  - e) Laboratory statements of results of all analyses evaluating compliance with requirements.
  - f) An evaluation of the concentration of each monitoring parameter as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J: Response to a Release in the SPRRs for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
  - g) A summary of all waste discharge monitoring.
  - h) A summary of all Facility Monitoring including rainfall data for the reporting period required in Section A.5. of this MRP. Rainfall data can be obtained from an onsite rain gauge or from a publicly available National Weather Service station or equivalent.
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting

period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following additional information beyond what is required for semiannual monitoring reports:

- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, 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. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
  - b) 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 "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.
  - c) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
  - d) 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.
  - e) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
  - f) The results of the annual testing of the LCRS components.
  - g) Updated concentration limits for each monitoring parameter at each monitoring well based on the new background data set.
3. **Annual Facility Inspection Reporting:** 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.
4. **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.



5. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the closure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236. Refer to Financial Assurances Specifications F.1 through F.3 of the WDRs.

## C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

### 1. Water Quality Protection Standard Report

For each mining unit, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a mining unit or portion of a unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to mining activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

The Discharger submitted Water Quality Protection Standard (WQPS) reports on 31 July 2000, 31 March 2005, and 15 September 2006. The Water Quality Protection Standard shall be updated annually for each monitoring well using new and historical monitoring data, and submitted with the annual report.

## **2. Monitoring Parameters**

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a mining unit. The monitoring parameters for all mining units are those listed in the tables in Section A of this MRP specified monitored medium.

## **3. Concentration Limits**

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

The Discharger submitted Water Quality Protection Standard (WQPS) reports on 31 July 2000, 31 March 2005, and 15 September 2006. Data from background wells and surface water locations were used to calculate WQPS as follows: MW-9 for CKD-1, MW-7 for CKD-3 and SW-1 for surface water. These WQPS need to be updated annually. WQPS for COCs which have been added to the monitoring program need to be established using an appropriate statistical method as specified in C.1.d.

The most recent concentration limits for select parameters as reported in the 2016 *Annual Monitoring Report* from background wells and background surface water sampling location were as follows:

Well or surface water sampling point	pH (Std units)	EC (umhos/cm)	COD (mg/L)	TDS (mg/L)	Aluminum (ug/L)	Total Chromium (ug/L)	Hexavalent Chromium (ug/L)
MW-9	6.5 - 8.4	679	11	559	142	3	8
MW-7	6.5 - 8.4	700	16	255	111	2	7
SW-1	6.5 - 8.4	373	9	213	161	5	7

#### 4. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.43 of the SPRRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.44 of the SPRRs.
- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedures as required in Standard Monitoring Specification I.45 of the SPRRs.

#### 5. Point of Compliance

The point of compliance for the water standard at each mining unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are monitoring locations at the point of compliance:

<u>Cell or Module</u>	<u>Point of Compliance Monitoring Wells</u>
CKD-1	MW-4
CKD-3	MW-8

MW-8 is completed within CKD material. A new hydraulically downgradient point of compliance for CKD-3 will be proposed in the CKD-3 design report after the limits of CKD-3 are established.

#### 6. Compliance Period

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

compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

## 7. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

## D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: ORIGINAL SIGNED BY  
PAMELA C. CREEDON, Executive Officer

9 June 2017

(Date)

NJV/WMH