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CENTRAL VALLEY REGION

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Redding, CA 96002

[Regional Board Website](https://www.waterboards.ca.gov/centralvalley) (<https://www.waterboards.ca.gov/centralvalley>)

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WASTE DISCHARGE REQUIREMENTS ORDER R5-2023-0008

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**ORDER INFORMATION**

**Order Type(s):** Waste Discharge Requirements (WDRs)  
**Status:** ADOPTED  
**Program:** Mines  
**Region 5 Office:** Sacramento (Rancho Cordova)  
**Discharger(s):** Homestake Mining Company of California  
**Facility:** McLaughlin Mine  
**Address:** 26775 Morgan Valley Road  
**County:** Lake, Napa, Yolo Counties  
**Parcel Nos.:** Table 1  
**GeoTracker ID:** L10002904774  
**Prior Order(s):** 5-01-168; R5-2012-0010; R5-2013-0030; R5-2012-0010-01

**CERTIFICATION**

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 27 April 2023.

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PATRICK PULUPA,  
Executive Officer

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## GLOSSARY

<b>AMD</b> .....	acid mine drainage
<b>amsl</b> .....	above mean sea level
<b>Antidegradation Policy</b> .....	Statement of Policy with Respect to Maintaining High Quality Waters in California, State Water Board Resolution 68-16
<b>Basin Plan</b> .....	<i>Water Quality Control Plan for the Sacramento and San Joaquin River Basins</i>
<b>bgs</b> .....	Below Ground Surface
<b>CEQA</b> .....	California Environmental Quality Act
<b>CEQA Guidelines</b> .....	California Code of Regulations, Title 14, section 15000 et seq.
<b>COCs</b> .....	Constituents of Concern
<b>CPMP</b> .....	Closure and Post-Closure Maintenance Plan
<b>CQA</b> .....	Construction Quality Assurance
<b>CWC</b> .....	California Water Code
<b>Designated Waste</b> .....	(a) Hazardous Waste subject to variance from management requirements per Health and Safety Code section 25143; and (b) Nonhazardous Waste containing pollutants that, under ambient conditions, could be released in concentrations exceeding applicable WQOs, or that could reasonably be expected to affect beneficial uses of water. (Wat. Code, § 13173.)
<b>DMP</b> .....	Detection Monitoring Program
<b>DSD</b> .....	Division of Dam Safety
<b>EC</b> .....	Electrical Conductivity
<b>EIR</b> .....	Environmental Impact Report
<b>EMP</b> .....	Evaluation Monitoring Plan
<b>EWRF</b> .....	East Waste Rock Facility

<b>ft</b> .....	foot/feet
<b>FEMA</b> .....	Federal Emergency Management Agency
<b>GCL</b> .....	Geocomposite Liner
<b>(h):(v)</b> .....	horizontal to vertical
<b>Hazardous Waste</b> .....	Wastes which, pursuant to Title 22, section 66261.3 et seq., are required to be managed in accordance with Division 4.5 of Title 22. (Title 27, § 20164; Title 23, § 2521(a).)
<b>HDPE</b> .....	High-Density Polyethylene
<b>LCRS</b> .....	Leachate Collection and Removal System
<b>LEA</b> .....	Local Enforcement Agency
<b>Leachate</b> .....	Liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. Leachate includes any constituents extracted from the waste and dissolved or suspended in the fluid. (Title 27, § 20164.)
<b>MCE</b> .....	Maximum Credible Earthquake
<b>MDB&amp;M</b> .....	Mount Diablo Base and Meridian
<b>MDL</b> .....	Method Detection Limit
<b>MIW</b> .....	mining-influenced water
<b>µg/L</b> .....	Micrograms per Liter
<b>mg/L</b> .....	Milligrams per Liter
<b>MPE</b> .....	Maximum Probable Earthquake
<b>msl</b> .....	Mean Sea Level
<b>MRP</b> .....	Monitoring and Reporting Program
<b>Mt</b> .....	million tons
<b>MU</b> .....	Mining Waste Management Unit/Mining Unit
<b>MW</b> .....	Monitoring Well
<b>NP</b> .....	North Pit

<b>NWRF</b> .....	North Waste Rock Facility
<b>SPRRs</b> .....	Standard Provisions and Reporting Requirements
<b>ROWD</b> .....	Report of Waste Discharge
<b>SP</b> .....	South Pit
<b>SWRF</b> .....	South Waste Rock Facility
<b>TDS</b> .....	Total Dissolved Solids
<b>TIF</b> .....	Tailings Impoundment Facility
<b>Title 22</b> .....	California Code of Regulations, Title 22
<b>Title 23</b> .....	California Code of Regulations, Title 23
<b>Title 27</b> .....	California Code of Regulations, Title 27
<b>USEPA</b> .....	United States Environmental Protection Agency
<b>WDRs</b> .....	Waste Discharge Requirements
<b>WQOs</b> .....	Water Quality Objectives
<b>WQPS</b> .....	Water Quality Protection Standard
<b>WWRF</b> .....	West Waste Rock Facility



## FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) hereby finds as follows:

### Introduction

1. Homestake Mining Company of California (Discharger or Homestake), a subsidiary of Barrick Gold Corporation, owns and operates the McLaughlin Mine (Facility), which is located approximately 13 miles southeast of Lower Lake in Lake County, Sections 20, 29, 35 and 36 of T12N, R5W and Sections 1, 2, 11 and of 12 T11N, R5W; and Section 6 T11N, R6W, Mount Diablo Base and Meridian (MDB&M). The Facility is located at the junction of Lake, Napa, and Yolo Counties. The address associated with the Facility is 26775 Morgan Valley Road, Lower Lake, California 95457. The Facility’s location is depicted on the Site Location Map in **Attachment A**.
  
2. The Facility is a part of the Donald and Sylvia McLaughlin Natural Reserve (the Reserve), a relatively contiguous block of 6,430 acres. The Reserve is owned jointly by the Discharger and the University of California, Davis (UC Davis). The Discharger continues to own and retains responsibility for the approximately 1,200 acres disturbed by mining. Assessor’s Parcel Numbers (APNs) listed in Table 1 are owned by the Discharger except for the Lake County parcels which are owned by Homestake’s parent Barrick Gold Corporation. UC Davis owns and manages the remaining portion of the Reserve.

Table 1—McLaughlin Mine Parcel Assessor’s Parcel Numbers (APN) by County

Lake County APNs	Napa County APNs	Yolo County APNs
012-065-010	015-010-005	018-280-003
012-065-140	015-010-020	018-310-001
013-018-020	015-010-021	018-310-021
013-018-110	015-010-023	018-310-023
013-018-120	015-020-002	018-310-024
799-000-018	015-020-006	018-320-012
	015-020-008*	018-320-013

Lake County APNs	Napa County APNs	Yolo County APNs
	015-020-009	018-320-014
	015-020-010	018-330-006
	015-020-013	018-330-008
	015-100-001	018-330-020
	015-100-008	018-330-021
	015-100-012	018-340-002
	015-120-002	018-340-009
		018-340-017
		018-340-019
		018-340-021
		018-340-022
		018-340-023
		018-340-029
		799-000-007

3. In compliance with Provision E.18 of the 2012 Order, the Discharger recorded a Notice of Environmental Restriction (Notice) for parts of their property directly affected by mining on 19 July 2013. The purpose of the Notice is to alert potential purchasers of the listed properties of the WDRs requirements, restrictions, and obligations. This Order continues the requirement for this Notice and environmental restrictions for parts of property directly affected by mining to remain in effect.
4. As the Facility's owner and operator, the Discharger is responsible for compliance with this Order, which prescribes Waste Discharge Requirements (WDRs) regulating monitoring, closure, and post-closure maintenance of the mining waste management units (MUs) listed in **Table 2**.

Table 2—Summary of Mining Waste Management Units (MUs) Permitted under Order

<b>Mining Unit</b>	<b>Waste Classification</b>	<b>Size/Waste Mass or Volume</b>	<b>Liner/Cover Components</b>	<b>Status</b>
Tailings Impoundment Facility (TIF)	Group B	400 acres/ 38 million tons (Mt)	Unlined, 155 foot high clay cored impoundment dam keyed into bedrock, drainage blanket downstream of dam core.  Cover consists of 1-2 ft of clean soil on 247 acres; the central portion is covered by MIW pond which is fluctuating in size	Closure Pending
South Pit (SP)	Group B	67 acres/ 0.2 Mt of fill on the bottom	Unlined, base of uncovered waste is below the water table, any leachate is contained within the mine pit lake.	Operating
North Pit (NP)	Group B	17 acres/ 4.6 Mt	Unlined, base of uncovered waste is below the water table, any leachate is contained within the mine pit lake.	Operating

<b>Mining Unit</b>	<b>Waste Classification</b>	<b>Size/Waste Mass or Volume</b>	<b>Liner/Cover Components</b>	<b>Status</b>
West Waste Rock Facility (WWRF)	Group B	350 acres/ 13 Mt of waste rock	<p>Base layer is 5-feet of non-acid forming clayey waste on prepared sub-grade and spine drains.</p> <p>Leachate is pumped to South MP.</p> <p>The final cover consists of ten to fifteen-feet of clay overlain by five to ten-feet of vegetated soil cover.</p>	Closed
East Waste Rock Facility (EWRF)	Group B	62 acres/ 13 Mt of waste rock	<p>Base Layer is 5-feet of non-acid forming clayey waste on prepared sub-grade and spine drains.</p> <p>Leachate is pumped to South MP.</p> <p>The final cover consists of ten to fifteen-feet of clay overlain by five to ten-feet of vegetated soil cover.</p>	Closed
North Waste Rock Facility (NWRF)	Group B	43 acres/ 14.6 Mt of waste rock	<p>Unlined, cover consists of fifteen-feet of non-acid generating clay overlain by five-feet of vegetated soil cover.</p>	Closed
South Waste Rock Facility (SWRF)	Group B	60 acres/ 7 Mt of waste rock	<p>Unlined, cover consists of fifteen-feet of non-acid generating clay overlain by five-feet of vegetated soil cover.</p>	Closed

See Glossary for definitions of terms and abbreviations in table.

5. Since the previous WDRs were adopted, the Discharger completed the following activities at the site:
  - a. In 2012, an Engineered Low-Permeability Cutoff Barrier was installed along the north-east rim of North Pit to the elevation 1730 feet amsl. At the same time, North Pit/South Pit berm divider was repaired increasing the height of the berm to 1735 amsl. In response to these improvements, WDR amendment R5-2013-0030 increasing MIW regulatory levels to 1720 ft amsl for NP and 1731 ft amsl for SP was adopted.
  - b. From 2011-2015, 247 acres (out of the required 315 acres) of TIF surface were covered by one-foot thick soil cover.
  - c. In 2013, Homestake replaced the liners of the two overflow return sump ponds (TRS-1 and TRS-2) at the toe of TIF dam.
  - d. In 2017, in response to an exceptionally wet winter and rising MIW pit levels, seven piezometers were installed along the NP Low Permeability Barrier along with a seepage collection system upgradient from the Low Permeability barrier. A trap bag pit dam was constructed on the pit divider berm to the crest elevation of 1741 amsl. A seepage collection ditch was installed along the toe of EWRF. A seepage collection system was also constructed along a section of the 1700 bench of the WWRF. The number of evaporators used to manage pit water increased to 47.
  - e. In 2018, the temporary trap bag berm on the NP/SP divider berm was raised to the elevation of 1745 feet amsl.
  - f. In 2019, seepage collection ditches were installed along the 1800 bench of NP backfill and along the 1600 bench of EWRF. Underdrains and a slurry wall were installed along the EWRF diversion channel. The Discharger performed exploratory drilling on WWRF for potential source control project. The 47 evaporators along the rim of mining pits were replaced with 8 high capacity evaporators.
  - g. In 2019, a treatment plant was installed along the edge of S Pit to treat MIW from the pits and discharge treated effluent to the Davis Creek Reservoir as permitted by the Notice of Applicability R5-2016-0076-031 issued in 2019 and amended in 2020. Treatment was discontinued in 2021 when MIW levels in the pits reached 20 feet below their respective regulatory levels.
  - h. In 2022, the previously reclaimed diversion channels along the northwest edge of TIF were reestablished to reduce the contribution of stormwater to the internal pond.

6. On 1 July 2021, the Discharger submitted an updated Report of Waste Discharge (ROWD), which has been used for revision and preparation of this Order. The ROWD and supporting documents contain the following proposed facility changes:
  - a. Revision of TIF closure plan; and
  - b. Installation of engineered evaporation ponds as pit water management strategy.

### **Materials Accompanying Order**

7. The following materials are attached to this Order, and incorporated herein:

**ATTACHMENT A — LOCATION**  
**ATTACHMENT B — FEATURES**  
**ATTACHMENT C—REGIONAL GEOLOGY**  
**ATTACHMENT D—MINE PIT AREA WITH MONITORING POINTS**  
**ATTACHMENT E—TIF AREA AND MONITORING POINTS**  
**ATTACHMENT F—EVAPORATION PONDS**  
**ATTACHMENT G—EVAPORATION POND DRY SEASON FLOW**  
**ATTACHMENT H—EVAPORATION POND WET SEASON FLOW**

Standard Provisions & Reporting Requirements for Waste Discharge Requirements for Discharges of Mining Wastes Regulated by Title 27, February 2009 (SPRRs or Standard Provisions)

Information Sheet for Waste Discharge Requirements Order (Information Sheet)

8. This Order is also accompanied by the concurrently adopted **Monitoring & Reporting Program R5-2023-0008 (MRP)**, the provisions of which are incorporated as part of this Order. Each time the operative MRP is modified by the Central Valley Water Board or its Executive Officer, the revised version shall become the operative MRP (superseding the prior version) and be incorporated as part of this Order (i.e., in lieu of the prior version).
9. To the extent there are any material inconsistencies between the provisions of this Order, the operative MRP and the SPRRs, the provisions of this Order shall be controlling. However, to the extent a revised MRP contains new or different factual findings reflecting changed conditions or circumstances at the Facility, the revised MRP findings shall be controlling.

10. Additional information about the Facility is set forth in the **Information Sheet**, which is incorporated as part of these findings. (See Finding 6)

### **Facility**

11. The McLaughlin Mine is a former gold mine located southeast from Lower Lake in California (Attachment A). When operating from 1984 to 2002, the mine consisted of an extraction area, which included two open pits, waste rock disposal areas, and the processing and tailings area (Attachment B). Mining ended in 1997; processing of stockpiled ore continued until 2002, at which time the mine was closed. During mining operations, Homestake excavated gold ore from two mining pits and discharged waste rock to four Waste Rock Facilities (Table 2; Attachments B and D). Mill tailings from the processing facilities were discharged to TIF (Table 2; Attachments B and E).
12. During reclamation following the end of mining and processing activities, onsite facilities were decommissioned, disturbed areas and Waste Rock Facilities (WRFs) were regraded, covered, and reclaimed, and the North and South MPs allowed to fill with mining-influenced water (MIW). Most of the mine infrastructure was removed and the surrounding surface areas graded to approximate natural surface which was covered by a layer of soil and planted with native vegetation. The former office and shop complex near the TIF remain for use by the Homestake closure/site maintenance staff and UC Davis personnel.
13. By 2015, Homestake covered 247 acres of the required 315 acres of TIF surface. At the end of 2020, the area covered by the internal pond was 176 acres. On 31 December 2020, the Discharger submitted the *TIF Closure Postponement Report McLaughlin Mine, Lake County, California*. The report discussed closure infeasibility by 31 December 2021, and provided an updated water balance model. The Discharger argued that the topsoil cover placed most recently in 2014 reflects the maximum practical extent of application based on existing conditions and high soil saturation surrounding the pond perimeter and that placement additional cover may be infeasible. The enclosed dynamic climate model suggested that the extent of internal pond will continue to exceed 80 acres most of time. The Report also proposed several approaches to reduce the amount water that reports to the internal pond: the reestablishment of previously reclaimed TIF diversion channels (completed in 2022), removal of internal berms (in progress), and measures to keep creek water from TIF pump-back system. The Report received concurrence on 30 March 2021. TIF closure has not been completed and the ROWD includes an amended closure proposal. This Order

requires that the Discharger submits an Updated TIF Closure Plan as specified in section E.2.

14. The 2013 Order amendment specified maximum water elevations in each pit to ensure hydraulic containment of Group B mining-influenced water. This Order continues these requirements. To manage the water levels, Homestake has been using enhanced spray evaporation. To bring MIW pit level to compliance, the Discharger treated MIW and discharged the effluent to the Davis Creek Reservoir. However, the operations of evaporators as well as of treatment and discharge systems are energy intensive and costly and depend on system reliability to maintain water balance. Therefore, the submitted ROWD provides technical information for the proposed semi-passive evaporation ponds which would reduce energy requirements, operations and maintenance costs, and simplify the system resulting in improved system reliability. In addition, the liners of the proposed evaporation ponds would reduce the amount of water that needs to be managed by reducing the volume of water reporting to the WRF seepage collection systems. The Discharger submitted *Final Design Report for McLaughlin Mine Evaporation Ponds* on 14 April 2022 and received concurrence letter on 20 May 2022.
15. These WDRs address the Closure and post-Closure Maintenance of the following mining units and associated infrastructure listed in Table 2 and shown on **Attachments A, B, D and E**.
  - a. Tailings Impoundment Facility (TIF)
  - b. North Pit and South Pit
  - c. North, East, West, and South Waste Rock Facilities.

### **Waste Classification & Permitting**

16. The Discharger discharged mine waste rock to the MPs and the WRFs, and mill tailings to the TIF. On 6 May 1996, the Board issued Order 94-315, in which tailings waste from the mill and waste rock from the mine were classified as Group B mining wastes as defined in Section 22480(b)(2)(B) of Title 27. The waste rock and tailings contain non-hazardous concentrations of soluble pollutants including TDS, sulfate, sodium, arsenic, nickel, boron, copper, and zinc. The concentrations of these soluble pollutants exceed water quality objectives and could cause degradation of waters of the state. This Order continues these classifications, which are set forth above in **Table 2**.



This classification is pursuant to Title 27, section 22480 (b)(2)(B), 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;*
  - (b) *or 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*
17. Leachate is collected at the base of the WRFs and transferred to the MPs for disposal. WRF leachate contains concentrations greater than background of TDS, sulfate, arsenic, copper, iron, nickel, and zinc. The concentrations of these soluble pollutants exceed water quality objectives and could cause pollution of waters of the state. This Order continues the classification of the WRF leachate a Group B mining waste.
18. The North and South MPs are filling with inflowing groundwater, storm water and leachate collected from WRF leachate removal and collection systems (LCRS). Besides the constituents in the WRF leachate described in previous finding, the pit mining-influenced water leaches soluble constituents (metals and salts) from mine wall rocks and waste rock stored in the pits. This Order continues the classification of the pit mining-influenced water (MIW) as Group B mining waste.
19. The North and South MPs and the TIF were constructed without liners. The Board previously granted exemptions for the area MPs, the East and West WRFs, and for the TIF from the requirements for liners and LCRSs under California Code of Regulations, Title 27, Section 22470(c), which contains language stating that the Central Valley Water Board may grant exemptions from the requirements to construct liners and LCRSs at mining units if a mining unit meets specific criteria. This Order acknowledges that these exemptions continue to apply.

Section 22470(c) states in part:

(c) *Exemptions Based on No/Little/Poor G.W. -The RWQCB can exempt a Group A or B (sees22480 of this article) Mining Unit from certain provisions of this article if a comprehensive hydrogeologic investigation demonstrates that:*

- (1) *there are only very minor amounts of groundwater underlying the area; or*
- (2) *the discharge is in compliance with the applicable water quality control*

*plan; and*

- (3) either natural conditions or containment structures will prevent lateral hydraulic interconnection with natural geologic materials containing ground water suitable for agricultural, domestic, or municipal beneficial uses. There is no detectable vertical hydraulic interconnection between the natural geologic materials underlying the Unit and natural geologic materials containing such ground water. If the above demonstration is acceptable to the RWQCB, the discharger can be exempted from requirements for liners and leachate collection and removal systems (see §22490 of this article). However, the discharger shall comply with the requirements of this article relative to siting, precipitation and drainage controls, and surface water quality monitoring. Closure and post-closure maintenance periods shall be designed to protect surface water quality. Ground water monitoring, and unsaturated zone monitoring as feasible, shall be conducted during the active life, closure, and post-closure maintenance period to verify that the Unit is not affecting ground water suitable for agricultural, domestic, or municipal beneficial uses.*

### **Site Conditions**

20. McLaughlin Mine is located in mountainous terrain of the east branch of Coastal Ranges. The mining pits straddle the crest of a former ridge. The WRFs are located on the western slopes of the ridge. TIF occupies a small drainage five miles to the northwest from the MPs. MPs and WRFs can be found on USGS 7.5 minutes Knoxville Quadrangle topographic map, and TIF on the Jericho Valley Quadrangle.
21. McLaughlin Mine is located along the Stony Creek Fault, which is bounded by tectonically altered seafloor sediments with ultramafic rocks from the Coast Range Ophiolite to the west and marine sediments of the Great Valley Sequence to the east. Running northwest to southeast through the mine, the Stony Creek Fault is an oblique strike-slip fault and is part of the San Andreas Fault system (**Attachment C**). McLaughlin Mine areas primarily contain moderately deformed marine sedimentary rocks from the Great Valley Sequence, which overlie surface and near-surface bedrock of sheared and altered Jurassic-aged Franciscan Complex serpentinite. The ground surface is relatively permeable from the weathered and highly fractured bedrock, which becomes less permeable and less fractured with depth.
22. Hydrothermal activity in the Stony Creek Fault from volcanic vents and dikes was prominent in the region as recently as one million years ago. The altered minerals and gold ore excavated from the North and South MPs during mining were a result of this hydrothermal mineralization and alteration of rocks. Sulfide minerals, carbonates, and siliceous minerals were deposited through epithermal

alteration and other geochemical processes due to localized hydrothermal activity.

23. Land uses within one mile of the Facility include habitat reserve, recreation, research, and grazing.
24. Surface drainage from the TIF, the WRFs, and western parts of the MPs is toward the Hunting Creek in the Upper Putah Creek Hydrologic Area. Hunting Creek drains south to Putah Creek and Lake Berryessa. According to the Central Valley Water Board's *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan), the beneficial uses of Lake Berryessa include: municipal and domestic use (MUN); agricultural supply (AGR); water contact recreation (REC-1); non-water contact recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); and spawning, reproduction and/or early development (SPAWN).

Surface drainage from areas east of the mine pits is toward the Davis Creek. Davis Creek drains to Cache Creek. According to the Central Valley Water Board's *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, the beneficial uses of Cache Creek from Clear Lake to Yolo Bypass include: municipal and domestic use (MUN); agricultural supply (AGR); industrial process supply (PRO); water contact recreation (REC-1); non-water contact recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); migration of aquatic organisms (MIGR); and spawning, reproduction and/or early development (SPAWN).

25. Groundwater at McLaughlin Mine occurs as shallow, unconfined subsurface water, and deep confined groundwater. The shallow groundwater occurs in alluvial deposits, volcanic, and other fractured surficial deposits. Groundwater levels in near-surface units generally follow the topography, with recharge occurring along topographic highs, and discharge occurring within stream valleys. Groundwater elevations range from 1140 feet MSL to 2280 feet MSL. Depth to shallow groundwater may fluctuate seasonally as much as 25 feet.
26. Groundwater flow is controlled by the fracture system and otherwise generally conforms to local topography. Groundwater flow directions and gradients are highly variable.
27. Through a comprehensive hydrologic investigation, the Discharger determined that there are only very minor amounts of groundwater and the chemical quality of ground and surface waters in the immediate vicinity of the MPs, East and West WRFs, and the TIF is generally poor. Little ground water has been found

underlying the waste rock and tailings areas due to the low permeability of the bedrock. In the mine pit area, a deeper aquifer occurs primarily in fractured basalt dikes, which are limited to the immediate vicinity of the mine pits. This deep aquifer is of poor quality due to its geothermal nature. In this aquifer, TDS ranges from 1,000 to 5,000 mg/l. Sulfate averages about 400 mg/l and chloride ranges from 20 to 1,600 mg/l. Boron averages about 100 mg/l near the south end of the mine pit and about 3 mg/l near the north end.

28. According to the Basin Plan, the designated beneficial uses of groundwater at the Facility are municipal use (MUN), agricultural supply (AGR) and industrial process supply (PRO); however, the local groundwater quality at the Facility is poor and not suitable for municipal or domestic use.
29. There are no domestic, industrial, and agricultural supply wells within one mile of the Facility. One groundwater well at the Facility is used to supply the sanitary system.
30. The Discharger's site-specific seismic analysis indicates that an earthquake, occurring along the Huntington Creek/Bartlett Spring Connection, at a closest rupture distance of 1.1 miles, would result in magnitude 6.7 maximum credible earthquake (MCE) with 0.49 g peak acceleration. The probability of recurrence rate or return period are not confidently known for most faults.
31. Based on data from the nearest weather station Sanel Valley Station #106, the Facility has an annual average precipitation of 32.6 inches (1991-2021), and a mean pan evaporation of 50.7 inches per year (1998-2018). The nearest weather station is reflective of conditions at the Facility.
32. Stormwater diversion channels must be constructed to accommodate stormwater runoff from 24-hour precipitation events with a return period of 10 years for Group B MUs (See Cal. Code Regs., tit. 27, § 22490). According to National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Atlas 14, Volume 6 (rev. 2014), the Facility's 10-year, 100-year, and 1,000-year, 24-hour rainfall events are estimated to result in 5, 7.5 and 10 inches of precipitation, respectively. Source: [NOAA Precipitation Frequency Data Server](https://hdsc.nws.noaa.gov/hdsc/pfds) (<https://hdsc.nws.noaa.gov/hdsc/pfds>).
33. The Facility is covered under the State Water Board's operative General Permit for Storm Water Discharges Associated with Industrial Activities, NPDES Permit No. CAS000001 (Industrial General Permit).

34. Based on calculations provided in the 1982 report entitled *McLaughlin Project-Proposed Gold Mine and Mineral Extraction: Environmental Report*, the WRFs and the MPs are not within a 100-year floodplain. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (<https://msc.fema.gov/portal>) sheets 06113C0200G and 06033C0900D, the Facility is not located within a 100-year floodplain. Moreover, the TIF is protected from flood damage with a storm water interception channel system designed to handle the 1000-year, 24-hour flood event.

### **Monitoring Networks**

35. The groundwater monitoring system includes twelve monitoring wells: for the mine pit area S-01, S-02B, and S-10; for the waste rock facilities S-05 and S-06; and for the tailings impoundment facility N-1, N-2A, N-5, N-8A N-8B, N-8C and N-12.
36. Water quality in surface water bodies draining the mine area is sampled at the following locations: HC-09, HC-10, and KC-03.
37. Springs or seeps down gradient of the mine pit area are sampled at the following locations: 1420BS, 1450BS, 1550KS, 1560KS, 1600 SEEP, 1400KA (adit), 1550KA (adit), 1680DS, and 1590DS.
38. Leachate and pump-back samples are sampled in TIF and WRF sumps.
39. The Discharger needs to establish monitoring points, parameters, and sampling frequency for future evaporation ponds used to ensure that discharge standards are met prior to diversion from SP and discharge to the stormwater system (see Section E.1).
40. As of the adoption of this Order, the above-described networks comply with the monitoring requirements of Title 27. (See Cal. Code Regs., tit. 27, §§ 20415–20435.) Subsequent changes to these networks will be reflected in a potential Revised Monitoring & Reporting Program issued by the Executive Officer.

### **Water Quality Protection Standard**

41. A Water Quality Protection Standard (WQPS) is the analytical framework through which MUs are individually monitored for releases and impacts to water quality. (Cal. Code Regs., tit. 27, § 20390, subd. (a).) Under Title 27, a WQPS is separately established for each MU in WDRs. (*Id.*)

42. In accordance with Title 27, this Order, by virtue of its incorporation of **Monitoring & Reporting Program R5-2023-0008 (MRP)** and subsequent revisions thereto, establishes a WQPS for each MU at the Facility.

### **Unit Construction, Design and Closure**

43. California Water Code (CWC) section 13360(a)(1) allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements.
44. Title 27, section 22510(j) requires that: *“new and existing Group A and B waste piles shall be closed in accordance with the provisions of Section 21090(a-c)”* which specifies Closure and Post-Closure Maintenance Requirements of Solid Waste Landfills.
45. The Central Valley Water Board is authorized to approve an **engineered alternative** to Title 27 prescriptive standards (see, e.g., Cal. Code Regs., tit. 27, § 20330, subd. (c)), provided that the discharger demonstrates that compliance with the prescriptive standard would be unreasonably and unnecessarily burdensome in comparison to the proposed alternative. (Cal. Code Regs., tit. 27, § 20080, subds. (b), (c); State Water Board Resolution 93-62).

### **Tailings Impoundment Facility**

46. The TIF consists of a 155-foot high earth-fill dam that blocks a small dry valley. The impoundment contains 38 million tons of tailings on approximately 400 acres. The maximum thickness of tailings is approximately 145 feet. The dam is constructed with a clay core that is keyed into bedrock and a sand seepage collection blanket downstream of the clay core. Two drainage systems at the base of the dam collect seepage from the chimney drain, the blanket drain, and from springs in the dam foundation. Collected liquids are pumped back to the TIF. In ROWD, the Discharger proposed to divert pump back liquids to a future infiltration gallery. This Order requires submittal of an Updated TIF Closure Plan with an evaluation demonstrating the proposed infiltration gallery will not impair surface or groundwater quality (See Sections E.1 and I.2).
47. Perimeter diversion channels isolate the TIF from storm water run on. In 2022, the Discharger reestablished a previously reclaimed section of diversion channels to reduce amount of non-contact water reporting to the internal pond.

48. Groundwater monitoring wells are located downgradient from the embankment to detect seepage. To date, the approved monitoring program has not detected evidence of a release from the TIF to groundwater or surface water.
49. The TIF embankment dam is regulated by the California Department of Water Resources, Division of Safety of Dams (DSD). DSD reviews and accepts dam design and construction documents and inspects all dam structures periodically. DSD has certified the TIF dam is designed and constructed in a manner that protects downstream life and property. This Order requires that the Discharger submits copies of annual dam safety reports.
50. The tailings are silt-sized ground rock particles which were discharged as a slurry from spigots at the perimeter of the TIF. The discharge technique resulted in coarser material at the perimeter and finer tailings near the center of the TIF.
51. In 1983, before the start of active mining, the Discharger submitted the initial Reclamation and Closure Plan that included closure of the TIF. The plan for the TIF anticipated grading top deck to drain; breaching the dam to allow storm water runoff; installing a soil cover consisting of a capillary barrier, two feet of crushed waste rock, and one to two feet of soil; and establish a vegetation cover.
52. The TIF ceased operations in July 2002, when ore processing was complete. Before the end of operations, in October 2001, the Discharger submitted the *Homestake Mining Company, McLaughlin Mine, Closure Plan* proposing a revised closure plan. The Discharger justified a revised approach to closure because actual physical conditions of the tailings turned out to be different than assumed conditions in the preliminary plan. The revised plan proposed to cover the TIF with nominal six-inch soil cover emplaced by hydraulic methods (no compaction and no coverage control), allow natural re-vegetation, leave an internal pond, and continue to maintain the dam.
53. In October 2008, the Discharger submitted the *Final Closure and Postclosure Maintenance Plan for McLaughlin Mine Tailings Impoundment Facility*. The proposed final TIF closure consisted of placing a soil cover over areas with thin tailings deposits, approximately 320 acres. The remaining 80 acres of tailings, near the center of the impoundment were to remain an uncovered low area with an internal pond. The internal pond was expected to expand and contract seasonally and in response to long term weather patterns. The revised plan left the TIF embankment dam intact without a breach. The cover was to consist of one to two feet of compacted soil with a system of low earthen berms to catch and hold fresh storm water and to support native vegetation. The upland covered

parts of the tailings were to evolve into a mixed wetlands/grasslands environment.

54. Because the Discharger demonstrated that the TIF can be maintained as a zero-discharge facility, the 2012 Order permitted this closure plan as an engineered alternative to the prescriptive Title 27 closure Performance Standard (Cal. Code Regs., tit. 27, § 22510(a).) which posits is that the units ...*shall be closed so that they no longer pose a threat to water quality*. The prescriptive standard for closure for tailings facility is described in Title 27, section 22510(l) which includes a low - permeable cover described in Title 27, sections 21090(a) – (c) and drainage of the tailings as required in Title 27, section 21400(a).

The Discharger demonstrated that the prescriptive standard closure is not feasible and proposed to contain solid and liquid wastes by maintaining the embankment dam and retaining leachate and contact water within the footprint of the TIF. According to the Discharger, as long as the structural integrity of the dam and the run-on interception and removal system are maintained, the proposed closure system will protect water quality and achieve closure Performance Standard.

55. By 2015, Homestake covered 247 acres of the required 315 acres of TIF surface, however, the large extent of the internal pond prevented coverage of additional surface and the Discharger submitted the *TIF Closure Postponement Report* in December 2020, one year prior to the compliance deadline. In the report, the Discharger argued that the topsoil cover placed most recently in 2014 reflects the maximum practical extent, The enclosed dynamic climate model suggested that the extent of internal pond will continue to exceed 80 acres most of the near future.
56. The revised TIF closure plan included in the 2021 ROWD proposes several measures to reduce the amount of MIW in the central pond, but does not propose to cover any additional TIF tailings areas. The two main measures are to divert outflows from the Duck Pond from the TIF pond, and to cease pumping of the pump back liquids into the TIF pond but instead direct them to an infiltration gallery at the toe of the dam.
57. The Duck Pond outflows were considered sources of non-contact water to areas outside an internal berm constructed on the TIF as they are upgradient and not impacted by mining activities. The input of this water was intended to aid in establishing reclamation vegetation on the surface of the TIF and enhance



wildlife and diversity. The vegetation/habitat on the soil cover is now well-established so this water is no longer needed therefore it may be diverted.

58. The TIF Pump-back system collects water from the blanket and chimney drains in the TIF embankment, water rising from groundwater and springs in the dam foundation, and a small amount of seepage from the tailings mass; the water has been pumped into the TIF since the beginning of operations. There are two sampling/monitoring locations (TRS-1 and TRS-2) shown on Attachment E. The flows vary seasonally with higher flows occurring in the wet season. The monthly average combined flow ranges from 4 to 60 gpm, with an average flow of 23 gpm.
59. In 2021 ROWD, the discharger's proposed closure modification is to cease pumping the flows back to the TIF and instead allow the drain water to flow by gravity into subsurface infiltration galleries. The conceptual design of the infiltration galleries utilizes the existing ponds located at the respective TRS collection points. A gravel filled trench with a perforated pipe in the bottom would convey the water collected at the sump into the respective ponds. The TRS ponds would be modified by removing or perforating the existing liners, covering the ground with a geotextile to act as a filter, then filling the pond with gravel and rock. However, additional information is needed to assess regulatory compliance of this proposal (Sections E.2 and I.2).
60. The proposed closure amendment includes no further attempts to reduce the central pond size to the 80-acre area prescribed in previous WDRs and no further placement of soil cover on the remaining uncovered approximately 70 acres. An updated water balance model was used to evaluate the efficacy of further reducing the size of the pond sufficiently to allow placement of additional soil cover. The results indicate that under dynamic (i.e., rather than average) climatic conditions, the pond will fluctuate in area between 50 and 275 acres, with an average of 150 acres. The lower end of this range only occurs in the model as a result of lengthy sequential draught years (on the order of 6 years). The current size of uncovered area including the inner 80 acres is about 150 acres which is similar to the average size of the internal pond.
61. This Order requires that the Discharger submits an Updated TIF Closure Plan addressing the coverage of the remaining TIF surface areas and the feasibility of directing Pump-back liquids to an infiltration gallery (Sections E.2 and I.2).
62. Water quality in the internal pond is poor; the April 2021 sampling event detected the following concentrations: TDS – 12,000-14,000 mg/L, Sulfate – 9,000-9700 mg/L and Arsenic – 220-260 ug/L. Over time water quality is expected to degrade

through the process of evapo-concentration. One investigation projected TDS concentrations to increase to the saturation level (approximately 130,000 ppm). The 2012 Order required that the Discharger monitors water quality trends and submits a report if the trends signify that the internal pond may no longer be classified as Group B mining waste within the next three years. This Order continues this requirement (Section C.8).

### **North and South Mine Pits**

63. The McLaughlin Mine excavated gold ore from two adjacent open mine pits, the South Pit and the North Pit. The SP and NP were mined to floor elevations of approximately 1270 feet amsl and 1480 feet amsl, respectively. Pit high walls remain as they were originally excavated, the geologically strong east highwall averages 45 degree slopes, the weaker west highwall was constructed with a flatter slope averaging 25 degrees. The mine pit walls will weather over time and may undergo mass wasting. Any effects of mass wasting are expected to remain contained within the MPs.
64. Subsequent to active mining, dewatering wells were removed, and the mine pits filled with mining-influenced water. The pre-mining groundwater elevation in the area of the mine pits was approximately 1800 feet MSL. Without active management, static water level in the mine pit is likely to return to the pre-mining static groundwater level.
65. Storm water is diverted away from the mine pits by a system of drainage channels. The stormwater control system is designed to convey runoff from a 100-year, 24-hour storm event. Water flows reporting to the mine pit lakes include direct precipitation, pit wall runoff, groundwater inflow, and leachate from the East and West WRFs pumped to the South MP.
66. Water quality in the mine pits is generally poor. The April 2021 sampling event detected the following concentrations: TDS – 18,000 mg/L, Sulfate – 14,000 mg/L, Boron 13,000 µg/L and Nickel – 5,100 µg/L. The North MP has stronger vertical stratification with very low oxygen concentrations at depth, lower pH, and warmer temperatures. These differences suggest that North MP chemistry may be influenced by interaction with geothermal springs at depth. The 2012 Order required that the Discharger monitors water quality trends and submit a report if the trends indicate that the internal pond may no longer be classified as Group B mining waste. This Order continues this requirement (Section C.8).
67. The mine pits are connected to local groundwater flow and act as local groundwater sinks. If water levels in the mine pits are maintained below local

static groundwater elevation, pit water will not discharge to groundwater. The Discharger will manage water levels to maintain the pits as hydraulic sinks. This maintenance of pit water level will likely continue for a significant period of time.

68. The mine pit lakes are very large and there is a potential for a large scale discharge event that may be impossible to contain without providing substantial available capacity. Therefore, these WDRs require that the Discharger maintains ten feet of freeboard in both pits. These WDRs continue the requirement that North MP Lake water levels shall not exceed elevation 1720 feet MS. The low point that divides the two mine pits is at an elevation of 1735 ft amsl with a temporary trap bag dam bringing the low point to 1745 ft amsl. If the South Pit Lake water level exceeds 1745 feet MSL, it potentially could flood the North Pit Lake and result in a surface water discharge. Therefore, these WDRs require that the South MP Lake levels shall not exceed 1731 feet MSL to prevent any overflow of pit water from the South MP to the North MP.

#### Proposed Mine Pit MIW Management Plan

69. As described in the previous finding, these WDRs specify maximum MIW elevations in each pit to assure hydraulic containment. The Discharger has been employing several strategies in their efforts to manage MIW levels. The 2016-2017 wet season resulted an increase in pit levels above their respective regulatory levels and came close to the loss of containment. Additional spray evaporators and a temporary water treatment plant were deployed to restore freeboard and bring water levels to more than 20 feet below their respective regulatory levels. However, both enhanced evaporation and treatment and discharge systems are energy intensive and costly and depend on system reliability.
70. Therefore, the Discharger proposed construction of several lined shallow ponds to increase evaporation as a long-term sustainable solution to manage the McLaughlin Mine's net positive water balance. The lined ponds would provide the additional benefit of cutting off infiltration in the area above the West WRF and the diversion of direct precipitation away from the pits and pond areas during the winter rainy season.
71. Pit MIW is classified as a Group B mining waste. Therefore, the evaporation ponds are required to meet the performance standards in Title 27 for Group B MUs. The prescriptive requirements for Group B impoundments in Title 27 include a double liner system with a LCRS between the liners. However, as described in finding 17, Board previously granted exemptions for the MP and the East and West WRF areas. Staff reviewed the preliminary evaporation pond

design and found that that the previously granted exemption waiving the double liner and LCRS requirement applies to the area of the project in 8 January 2021 letter.

72. The evaporation pond layout is shown on **Attachment E**. MIW is proposed to be pumped from the MPs to the uppermost pond and flow in a cascading manner to lower elevation ponds with any residual overflow being returned to the MPs. Where possible, surface water diversions would be constructed to direct upland runoff away from the pond systems and into natural downstream drainages or existing diversion channels.
73. Evaporation pond operation will vary by season. As shown on **Attachment F**, during summer months, water from the MP lakes will be pumped into the ponds to evaporate. At the end of the dry season, the water remaining in the ponds would be drained and sent back into the MPs. Rainfall from the first significant storm of the season would rinse the ponds of any solids or salt accumulation, with the rinse water also being returned to the MPs. As shown on Attachment H, during the wet season, runoff will be diverted to natural downstream drainages via sluice gates. Water quality monitoring points will be established to ensure discharge standards are met prior to diverting water into the environment. Sampling of discharge from the evaporation ponds shall be performed in accordance with the General Industrial Stormwater Permit (Order 2014-0057-DWQ) to ensure that discharge standards have been met.
74. The Discharger submitted final evaporation pond design on 14 April 2022 with an intent to start construction soon after. Staff reviewed the design for compliance with applicable regulations and provided concurrence in their 20 May 2022 letter with restriction that the ponds can be constructed but MIW can't be discharged until the revised Order is adopted and Construction Quality Assurance Report is submitted and approved (Section I.1). At the time of the adoption of this order the evaporation ponds have not been constructed.

#### **Waste Rock Units in the Mine Pits**

75. Mine waste rock was placed in the North and South MPs in engineered containment units, and as fill in the construction of ramps and other structures. The North MP contains approximately 14.6 Mt, and the South MP contains approximately 7 Mt of waste rock. Backfill slopes are 2.5 horizontal (h):1 vertical (v) or less.

76. Previous Board-issued Orders classified McLaughlin Mine waste rock as Group B mining waste and exempted the MPs from requirements for liners and LCRSs. This order continues this classification and acknowledges the exemption.
77. McLaughlin Mine waste rock consists of both acid forming and non-acid forming types. Below elevation 1700 feet MSL, acid forming and non-acid forming wastes were emplaced randomly because they will remain underwater and will not be exposed to oxidation that produces acid mine drainage (AMD). Above 1700 feet MSL, the Discharger protected against AMD by encapsulating acid forming waste within non-acid forming waste. The encapsulation process consisted of placing fifty-foot-thick lifts of acid forming waste separated by five-foot-thick layers of compacted non-acid forming clayey waste. The waste cells were covered with a twenty-foot-thick final cover composed of not less than fifteen feet of non-acid generating clay overlain by five feet of soil. In the North Pit 5.4 Mt were placed below 1700 feet, 4.6 Mt were encapsulated above 1700 feet, and 4.6 Mt of non-acid generating waste were used to construct mining related structures. In South Pit 3.5 Mt were placed below 1700 feet, 3.3 Mt were encapsulated above 1700 feet and 0.2 Mt non-acid generating waste were used to construct mining related structures.
78. Under-drains were not installed for the mine pit back fills because waste cells are located so that leachate drains into and is contained by the pit lakes.
79. Closure of the North and South Pit waste rock cells was not pre-approved as an engineered alternative by the Board. Subsequently, in compliance with the requirements of WDRs Order No. 5-01-168, the Discharger submitted a report (August 2002) assessing the permeability of the covers at all the waste rock containment units. Based on testing of the in-place covers, the report concluded that cover thickness exceeded and hydraulic conductivity is equivalent or lower than the Title 27 prescriptive standard cover for a Group B mining waste and received concurrence on 23 September 2002.

### **East and West Waste Rock Facilities**

80. The Discharger constructed the East and West WRFs to contain waste rock generated by mining. The West WRF contains approximately 80 Mt of waste rock on 350 acres. The East WRF contains approximately 13 Mt of waste rock on 62 acres. Waste Rock consists of both acid forming and non-acid forming rock types. The Discharger has minimized the potential for production of acid mining drainage by encapsulating acid forming waste within non-acid forming clayey waste.

81. The waste rock cells at the East and West WRFs have a base layer of not less than five feet of non-acid forming clayey waste. Acid-forming waste rock was discharged in 50-foot lifts. Slopes are covered with a minimum of twenty feet of final cover consisting of not less than ten feet and in most cases fifteen feet of low permeability clay overlain by five to ten feet of vegetated soil.
82. Overall slopes ratios are 3(h):1(v) (bench faces are 2.5(h):1(v)) with 150 foot wide benches at 100-foot vertical intervals. The waste rock disposal facilities are designed to withstand the seismic loads resulting from the Maximum Probable Earthquake (Cal. Code Regs., tit. 27, Section 20370(a)).
83. Rock under-drains were constructed at low points in the original topography and at known natural seeps. The under drain system collects leachate and spring water and the system discharges to sumps for Pump-back to the South Pit. Collection sumps S-11 and S-12 are located at the toe of West WRF; collection sump S-13 is located at East WRF. This collection and pump back system will have to be operated as long as leachate is generated from the East and West WRFs.
84. Collection sump S-11 collects leachate in a 150,500 gallon tank with secondary containment capacity of 205,150 gallons and a pumpback capacity of 600 gpm. Sump S-12 has a 66,100 gallon tank with a secondary containment capacity of 88,880 gallons and a pump capacity of 680 gpm. S-13 has a 40,000 gallon tank and a pump capacity of 750 gpm.
85. The East and West WRFs have recurring small scale slope failures and erosion problems associated with heavy rain events, apparently due to constructed methods and the fine grained nature of cover soils. This will require periodic maintenance. The maintenance of the waste rock facilities will require regular monitoring and upkeep of the slope.
86. Closure of the East and West WRFs was not pre-approved as an engineered alternative by the Board. Subsequently, in compliance with the requirements of WDRs Order No. 5-01-168, the Discharger submitted a report (August 2002) assessing the permeability of the waste rock covers. Based on testing of the in-place covers, the report concluded that cover thickness exceeded, and hydraulic conductivity is equivalent or lower than the Title 27 prescriptive cover for a Group B mining waste and received concurrence on 23 September 2002.
87. Cover slopes have a maximum slope ratio of 2.5(h):1(v) and passed seismic stability analysis in compliance with Title 27, sections 21090(a) and 21750(f)(5). However, the distances between benches, 100 vertical feet, exceed the

prescriptive standard 50 vertical feet. Title 27, section 21090(a) states:

*“the RWQCB can allow any alternative final cover design that it finds will continue to isolate the waste in the Unit from precipitation and irrigation waters at least as well as would a final cover built in accordance with applicable prescriptive standards”.*

The Discharger’s analysis demonstrated that continued maintenance of the final covers at East and West WRFs will isolate the wastes from precipitation at least as well as a prescriptive cover, therefore, these units meet the requirements for an engineered alternative to the final cover requirements of Title 27, section 21090(a). This Order continues to require continued maintenance of the WRF slopes and final covers.

### **Closure and Post-Closure Maintenance**

#### **Financial Assurances**

88. Title 27 section 22212 requires the Discharger to establish financial assurances for closure and post-closure maintenance for 40 years. Surface mining operations at the Facility are subject to the California Surface Mining and Reclamation Act (SMARA, 1975). For the purposes of SMARA, Lake and Napa Counties are lead agencies. The Discharger’s Reclamation Plans (RP # 83-01 and RP #09-01) and related financial assurance for the cost of reclaiming all disturbed areas have been approved by the lead agencies. The Reclamation Plans are 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.
89. Title 27 section 22510(c) requires 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.
90. On 28 April 2022, the Discharger submitted their annual financial assurance update with the total adjusted estimate for closure and post-closure estimate at **\$ 45,611,084** in 2022 dollars. The adjusted estimate includes reclamation and TIF closure (\$ 11,036,148) as well as post-closure monitoring and operations and

maintenance for 40 years for TIF (\$ 18,230,615), East and West WRF (\$ 8,267,756), and North and South Pit (\$ 8,076,565).

91. The Discharger maintains two reclamation bonds established in 2013. Both bonds include Regional Water Quality Control Board as a beneficiary. The amount of the Lake County bond is \$ 28,533,704 and the amount of the Napa County Bond \$ 13,684,173. The sum of the two surety bonds **\$ 42,217,877** is less than the 2022 total adjusted estimate **\$ 45,611,084**. This Order requires that the Discharger establishes and submits additional financial instrument for the difference between the latest total adjusted cost estimate and the sum of the two existing bonds with Regional Water Quality Control Board as a beneficiary (Sections F.1 and I.4).

### **California Environmental Quality Act**

92. In accordance with the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., the Lake County, acting as the lead agency, adopted a **Negative Declaration** (SCH No. 2010012051) for modification of an approved reclamation plan on 22 April 2010. Pursuant to CEQA, the Central Valley Water Board is a responsible agency and considered the negative declaration. Mitigation measures from the negative declaration were incorporated into the 2012 Order and carry over into this Order. Additionally, there are no substantial changes to either the proposed project or the attendant circumstances under which it will be undertaken, and no new information requiring revision of the Negative Declaration.

### **Other Regulatory Matters**

93. This Order is issued in part pursuant to California Water Code section 13263, subdivision (a), which provides as follows:
- The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge..., with relation to the conditions existing in the disposal area ... into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of [Water Code] Section 13241.
94. This Order implements the Central Valley Water Board's Basin Plan, which designates beneficial uses for surface water and groundwater and establishes



water quality objectives (WQOs) necessary to preserve such beneficial uses.<sup>1</sup>  
(Wat. Code, § 13241 et seq.)

95. The State Water Board's *Statement of Policy with Respect to Maintaining High Quality Waters in California*, Resolution 68-16 (*Antidegradation Policy*) prohibits the Central Valley Water Board from authorizing degradation of "high quality waters" unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in applicable policies; and (3) is minimized through the discharger's best practicable treatment or control.
96. Consistent with Title 27, this Order requires the Discharger to maintain the Facility to contain waste within MUs, thereby preventing degradation of water quality. To the extent that there are releases from Facility MUs, the discharger will be required to address such releases through a Corrective Action Program. (See Cal. Code Regs., tit. 27, §§ 20385, 20415, 20430.) Because this Order does not authorize any degradation in water quality, it complies with the *Antidegradation Policy*.
97. For the purposes of California Code of Regulations, Title 23, section 2200, the Facility has a threat-complexity rating of **1-A**, where:
  - d. Threat Category "1" reflects waste discharges that can cause long-term loss of receiving water beneficial uses (e.g., drinking water supply loss, water-contact recreation area closures, or posting of areas used for spawning/growth of shellfish or migratory fish); and
  - e. Complexity Category "A" – Any discharge of toxic wastes; any small volume discharge containing toxic waste; any facility having numerous discharge points and groundwater monitoring; or any Class 1 waste management unit.

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<sup>1</sup> Designated beneficial uses surface water and groundwater are discussed in Finding 24 and Finding 28, respectively.

### **Reporting Requirements**

98. This Order is also issued in part pursuant to CWC section 13267, subdivision (b)(1), which provides that:

*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 ... 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 report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.*

99. The technical reports required under this Order, as well as those required under the separately issued MRP, are necessary to ensure compliance with prescribed WDRs and the provisions of Title 27 and State Water Board Resolution 93-62. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.
100. Failure to comply with the reporting requirements under this Order and the MRP may result in enforcement action pursuant to CWC section 13268.

### **Procedural Matters**

101. All local agencies with regulatory jurisdiction over land-use, solid waste disposal, air pollution and public health protection have approved the use of the Facility's site for the discharge of waste to land as provided for herein.
102. The Discharger, interested agencies and interested persons were notified of the Central Valley Water Board's intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (Wat. Code, § 13167.5; Cal. Code Regs., tit. 27, § 21730.)
103. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.
104. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

## REQUIREMENTS

**IT IS HEREBY ORDERED**, pursuant to CWC sections 13263 and 13267, that Orders R5-2013-0010 and R5-2012-0010-01 are rescinded, and that the Discharger and their agents, employees and successors shall comply with the following.

### **A. Discharge Prohibitions**

Except as otherwise expressly directed below, the Discharger shall comply with all Standard Prohibitions (SPRRs, § V), which are incorporated herein, as well as the following.

1. Except for pump-back liquids and evaporation pond flush liquids specifically permitted by this Order, and potential reclamation activities involving grading and stabilization of mine waste rock for the purposes of complying with SMARA, the discharge of mining waste, hazardous waste, designated waste, municipal waste, and inert waste at the Facility is prohibited. For the purposes of this Order, the terms mining waste, hazardous waste, designated waste, municipal waste, and inert waste are as defined in California Code of Regulations Title 27.
2. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited.
3. The discharge of wastes outside of a waste management and/or associated infrastructure specifically designed for their containment is prohibited.

### **B. Discharge Specifications**

Except as otherwise expressly directed below, the Discharger shall comply with all Standard Discharge Specifications (SPRRs, § III), which are incorporated herein, as well as the following.

1. The discharge shall not cause a condition of pollution or nuisance as defined by the CWC section 13050.
2. Pump-back liquids and evaporation pond flush liquids shall only be discharged into, and shall be confined to, the mining units and associated infrastructure specifically permitted for their containment. Pump-back system pipes, valves and pumps shall be inspected and maintained regularly. Leaks or other identified issues shall be repaired or replaced in a timely manner.
3. Surface roads will be watered as needed to control or reduce dust.

4. The Discharger shall maintain site security through out 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. Signs shall be repaired or replaced as needed to maintain their visibility. Vegetation that encroaches on or obscures signs shall be cut back or removed.

### **C. Facility Specifications**

The Discharger shall comply with all Standard Facility Specifications (SPRRs, § VI) which are incorporated herein.

1. Mining units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to flooding events with a 100-year return period.
2. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year 24-hour precipitation conditions.
3. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site and reported in compliance with MRP R5-2023-0008.
4. The TIF, South Pit, and North Pit, and related containment structures and infrastructure, shall be maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation.
5. Leachate generation shall not exceed 85% of the design capacity of collection sumps. If leachate generation exceeds this value and/or if the depth of the fluid in a sump exceeds the maximum needed for safe pump operation, then the Discharger shall notify the Regional Board in writing within seven days. Notification shall include a timetable for a remedial action to repair the containment structures or other action necessary to prevent release of leachate.

6. The Discharger shall maintain legible records of the monthly volume of leachate, pump-back liquids, and evaporation flush liquids discharged to the North MP, South MP, TIF Pond, future evaporation ponds, and the potential future infiltration gallery, and the manner and location of the discharge. Such records shall be maintained at the Facility. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board; the flow data shall be summarized and reported to the Central Valley Water Board in compliance with the Monitoring and Reporting Program.
7. Water Levels in the North Pit Lake shall be maintained below 1720 feet amsl. Water Levels in the South Pit Lake shall be maintained below 1731 feet amsl. South Pit MIW shall not overflow into North Pit.
8. The Discharger shall conduct annual water quality trend analysis for the TIF pond, the NP, and the SP in compliance with Monitoring and Reporting Program R5-2023-0008. If trend analysis indicate that water quality is likely to exceed Group B Mining Waste criteria within three years, the Discharger shall submit, within 180 days, an evaluation of corrective actions to prevent concentrations from exceed Group B Mining Waste criteria. Any corrective action plan shall include an implementation schedule for proposed corrective actions and propose additional monitoring to evaluate success of the corrective actions.
9. The Discharger shall submit an Updated TIF Closure Plan by 31 December 2025.
10. Prior to construction the Discharger shall submit detailed final closure technical documents and drawings for review and approval.
11. TIF areas previously covered with soil shall be inspected annually. If necessary supplemental erosion controls shall be implemented in previously covered areas to prevent exposed tailings. Supplemental erosion controls may include: 1) planting vegetation in areas where natural re-vegetation has not been successful; 2) installation of additional berms, water bars and/or drainage swales; and 3) installation of additional riprap or erosion matting.
12. Stormwater diversion channels shall be inspected semi-annually and following heavy precipitation events (greater than 1 inch of rainfall in 24-hours). Inspections shall note evidence of damage, excessive erosion, settlement, and obstruction by debris. Issues detected in the dry season shall be corrected before the rainy season. During the rainy season, damaged or obstructed drainage ditches shall be repaired as soon as practical, if possible before the next storm event. Repairs that cannot be

completed within two weeks shall be documented and a report explaining why they cannot be repaired. This report shall be submitted to the Regional Water Board within 72 hours of identifying damaged or obstructed drainage ditch.

13. Evaporation ponds shall be inspected monthly and following heavy precipitation events (greater than 1 inch of rainfall in 24-hours). Inspections shall note evidence of damage to the liner, excessive erosion, settlement, and obstruction by debris. Issues detected shall be repaired as soon as practical. If necessary for repairs, ponds containing MIW shall be drained into the Pit.
14. The Discharger shall provide the Regional Board a copy of the annual inspection report submitted to the Division of Safety of Dams (DSOD). The Discharger shall take appropriate actions to remedy damage as required by the DSOD.

#### **D. Unit Construction Specifications**

Except as otherwise expressly directed below, the Discharger shall comply with all Standard Construction Specifications and Standard Storm Water Provisions (SPRRs, § VII), which are incorporated herein, as well as the following.

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 (Cal. Code Regs., tit. 27, § 22490(d)). Mining units and associated infrastructure shall receive approval of the construction by Central Valley Water Board staff before use of the units commences [27 CCR §22490(d)].
2. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a mining unit's containment features or monitoring systems shall be prepared by a registered civil engineer or a certified engineering geologist (Cal. Code Regs., tit. 27, § 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 (Cal. Code Regs., tit. 27 § 22490(e) and § 20320(a)).

## **E. Closure & Post-Closure Maintenance Specifications**

Except as otherwise directed below, the Discharger shall comply with all Standard Closure and Post-Closure Specifications (SPRRs, § XI. D) and closure-related Standard Construction Specifications (SPRRs, § XI. E), as well as the following with respect to closure of mining units at the Facility.

1. ROWD includes Mine Pit Management Plan which includes operations, maintenance and closure plans for the proposed evaporation ponds. The plans were prepared by a California-registered civil engineer in accordance with 27 CCR 20324. The technical design for evaporation ponds was approved in 20 May 2022 letter. A construction certification report (CQA) signed by a registered civil engineer or certified engineering geologist shall be submitted to the RWQCB for approval 60 days after the construction is completed (see Time Schedule I.1). The discharge of MIW to evaporation ponds is prohibited until the Discharger receives CQA approval letter (Section I.1). Sampling of discharge from the evaporation ponds shall be performed in accordance with the facilities General Industrial Stormwater Permit (Order 2014-0057-DWQ) to ensure that discharge standards have been met. The Discharger shall include stormwater results in the Annual Monitoring Reports (AMRs) described in Section D.2 of MRP Order R5-2023-0008.
2. ROWD includes a Revised Closure Plan for TIF which proposes diversion of fresh Duck Pond water from the internal pond and the diversion of underdrain liquids to an infiltration gallery, but no additional efforts to reduce the internal pond size or to cover any additional surface required by the previous Order. The Duck Pond water may be diverted from the internal pond, however, this Order requires that the Discharger submits an Updated TIF Closure Plan with plans to ensure that the remaining uncovered TIF surface areas are covered if that becomes feasible. The Updated TIF Closure Plan shall include information to support regulatory compliance of a potential pump-back liquid infiltration gallery including a detailed description of the blanket and chimney drains reporting to the TIF Pump-back system and the configuration and present operation of the two TRS drain sumps (TRS-1 and TRS-2), available water quality and flow data for the drains and Pump-back, monitoring data for groundwater wells and surface water monitoring locations in the vicinity of the TRS drain sumps, analysis of the flow of groundwater in the vicinity of the TIF embankment, and characterization of surface water flows. Upon approval from Board Staff, the Discharger shall begin design and implementation of modified closure strategy.
3. The infrastructure for most mining units described in Table 2 will remain in service and will require regular inspection and maintenance. These

inspections and maintenance shall be included in the final post-closure plan and financial assurance estimates.

4. The Discharger shall submit a Final Closure and Post-closure Plan including closure and post-closure cost estimates for the entire facility for 40 years within 60 days from approval of Updated TIF Closure Plan (See Section I.3). The 40-year postclosure period is used to in effect provide annual maintenance in perpetuity.

## **F. Financial Assurances**

Except as otherwise directed below, the Discharger shall comply with all Standard Financial Assurance Provisions (SPRRs, § IV), as well as the following.

1. The Discharger maintains two reclamation bonds which include Regional Water Quality Control Board as a beneficiary, The amount of the Lake County bond is **\$ 28,533,704**, and the amount of the Napa County Bond **\$ 13,684,173**. The sum of the two bonds does not cover the total adjusted closure and post-closure cost estimate. Therefore, the Discharger shall establish an irrevocable financial mechanism for the difference between the sum of the two existing bonds and the latest approved total adjusted financial assurance (See Finding 91 and Section I.3) with the Central Valley Water Board as the named beneficiary 90 days after adoption of this Order (See Section I.4). The financial assurances mechanism shall be one listed in Title 27 section 22228 for which the Discharger is eligible.
2. Financial assurance costs include TIF closure costs, postclosure maintenance costs and corrective action costs for reasonably foreseeable releases at the TIF, the East and West Waste Rock Facilities, and the North and South Mine Pits for actions required herein. The issuing institution shall become liable under the terms of the financial assurance mechanism if the Executive Officer determines that the Discharger has failed or is failing to perform closure or postclosure maintenance or corrective action activities as guaranteed by the mechanism in a timely manner. Prior to any exercise of remedies, Regional Board staff will provide the Discharger with written notice of the Discharger's noncompliance with any provisions of these WDRs. The Discharger may cancel existing financial mechanisms only if alternate financial assurance is substituted as specified in Title 27, section 22227, or if the Discharger is released by the Central Valley Water Board from the requirement to maintain financial assurances.
3. **By 30 April each year**, the Discharger shall submit a report of financial assurances and shall annually adjust the financial assurances amount to account for inflation and any changes in facility design, construction, or



operation. If the adjusted cost estimates exceed the sum of financial mechanisms in place, the Discharger shall establish and submit increase riders for their existing financial assurance mechanisms 60 days after approval of adjusted estimate,

### **G. Monitoring Requirements**

Except as otherwise directed below, the Discharger shall comply with all applicable Standard Monitoring Specifications (SPRRs, § IX) and Standard Response to Release Specifications (SPRRs, § X), as well as the following:

1. The Discharger shall comply with all provisions of the separately issued Monitoring R5-2023-0008 and any subsequent revisions thereto (operative MRP).
2. The Discharger shall implement the Water Quality Protection Standard (WQPS) set forth in the operative MRP (see also Cal. Code Regs., tit. 27, § 20390); and shall verify the compliance of each WMU with each subsequent monitoring event.
3. For all WMUs, the Discharger shall implement a groundwater and surface water detection monitoring program (DMP) in accordance with Title 27, sections 20385, 20415 and 20420.
4. For each WMU subject to corrective action, the Discharger shall implement a corrective action monitoring program (CAMP) in accordance with Title 27, sections 20385, 20415 and 20430, and Section I of the SPRRs.

### **H. Reporting Requirements**

In addition to those Standard Provisions pertaining to notification and reporting obligations (see, e.g., § IX), the Discharger shall comply with the following provisions. The Discharger shall comply with all MRP provisions pertaining to the submittal and formatting of reports and data.

1. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program R5-2023-0008 in accordance with the following time schedule:
  - a. By **1 May each year until complete**, the Discharger shall submit documents and drawings for the coming closure construction season at the TIF. The submittal should include construction goals, timelines and a quality assurance plan.

- b. **By 30 July each year** submit update and status review of the TIF Closure.
    - c. **By 30 April each year**, submit the annual review and update of the status of financial assurances.
    - d. The Discharger shall submit a copy of annual inspection report submitted to the Division of Safety of Dam within two weeks after submittal to DSOD.
  2. Reports shall be submitted electronically via the State Water Board's GeoTracker Database (<https://geotracker.waterboards.ca.gov>). After uploading, the Discharger shall notify Central Valley Water Board staff via email at [CentralVallySacramento@WaterBoards.ca.gov](mailto:CentralVallySacramento@WaterBoards.ca.gov). The following information shall be included in the body of the email:  

<b>Attention:</b>	Title 27 Permitting and Mining
<b>Report Title:</b>	[Enter Report Title]
<b>GeoTracker Upload ID:</b>	[Number]
<b>Facility:</b>	McLaughlin Mine
<b>County:</b>	Lake County
<b>CIWQS Place ID:</b>	240112
<b>GeotTracker ID:</b>	L10002904774
  3. All technical reports submitted under this Order shall be prepared by, or under the direct supervision of, a California-licensed civil engineer or engineering geologist. For the purposes of this section, a "technical report" is a report incorporating the application of scientific or engineering principles.

**I. Time Schedule**

The Discharger shall complete the following tasks in accordance with the specified deadlines:

Table 3—Time Schedule

Item No.	Category	Task	Deadline
I.1.	Construction	Complete construction of evaporation ponds and submit construction quality assurance report for review and approval demonstrating construction was in accordance with approved construction plans and Standard Construction Specifications in Section VII of the SPRRs.	60 Days After Construction and at least 60 days prior to discharge
I.2.	Closure	Submit Updated TIF Closure Plan for review and approval as specified in E.2 of this Order.	31 December 2025
I.3.	Closure and Post-closure	Submit a Final Closure and Post-closure Maintenance Plan (FCPMC) including operation, inspection, and maintenance for the entire facility with cost estimates for a minimum of 40 years or until the waste no longer poses a threat to water quality, whichever is greater.	60 days after approval of Updated TIF Closure Plan
I.4.	Financial Assurance	Establish a financial assurance mechanism for the difference between the existing bond amounts and the latest approved Financial Assurance Estimate, in accordance with Section F of this Order and Section IV of the SPRRs.	90 days after adoption of this Order

**J. Other Provisions**

1. The Discharger shall maintain at the Facility copies of this Order (including all attachments), the operative Monitoring & Reporting Program (i.e., MRP R5-2023-0008 and any revisions thereto), and the SPRRs. These materials shall be made available to all operating personnel, who shall be familiar with the contents of such materials.
2. The Discharger shall comply with all applicable provisions of Title 27 (including those provisions not specifically referenced herein).

3. The Discharger shall continue to maintain the Notice of Environmental Restriction (Notice) for parts of their property directly affected by mining established on 19 July 2013. The purpose of the Notice is to alert potential purchasers of the listed properties of the WDRs requirements, restrictions, and obligations.

### **LIST OF ATTACHMENTS**

Attachment A — LOCATION

Attachment B — FEATURES

Attachment C—REGIONAL GEOLOGY

Attachment D—MINE PIT AREA WITH MONITORING POINTS

Attachment E—TIF AREA AND MONITORING POINTS

Attachment F—EVAPORATION PONDS

Attachment G—EVAPORATION POND DRY SEASON FLOW

Attachment H—EVAPORATION POND WET SEASON FLOW

Standard Provisions & Reporting Requirements for Waste Discharge Requirements for Discharges of Mining Wastes Regulated by Title 27, February 2009 (SPRRs or Standard Provisions) (SPRRs or Standard Provisions)

Information Sheet

Monitoring and Reporting Program R5-2023-0008 (separate document)

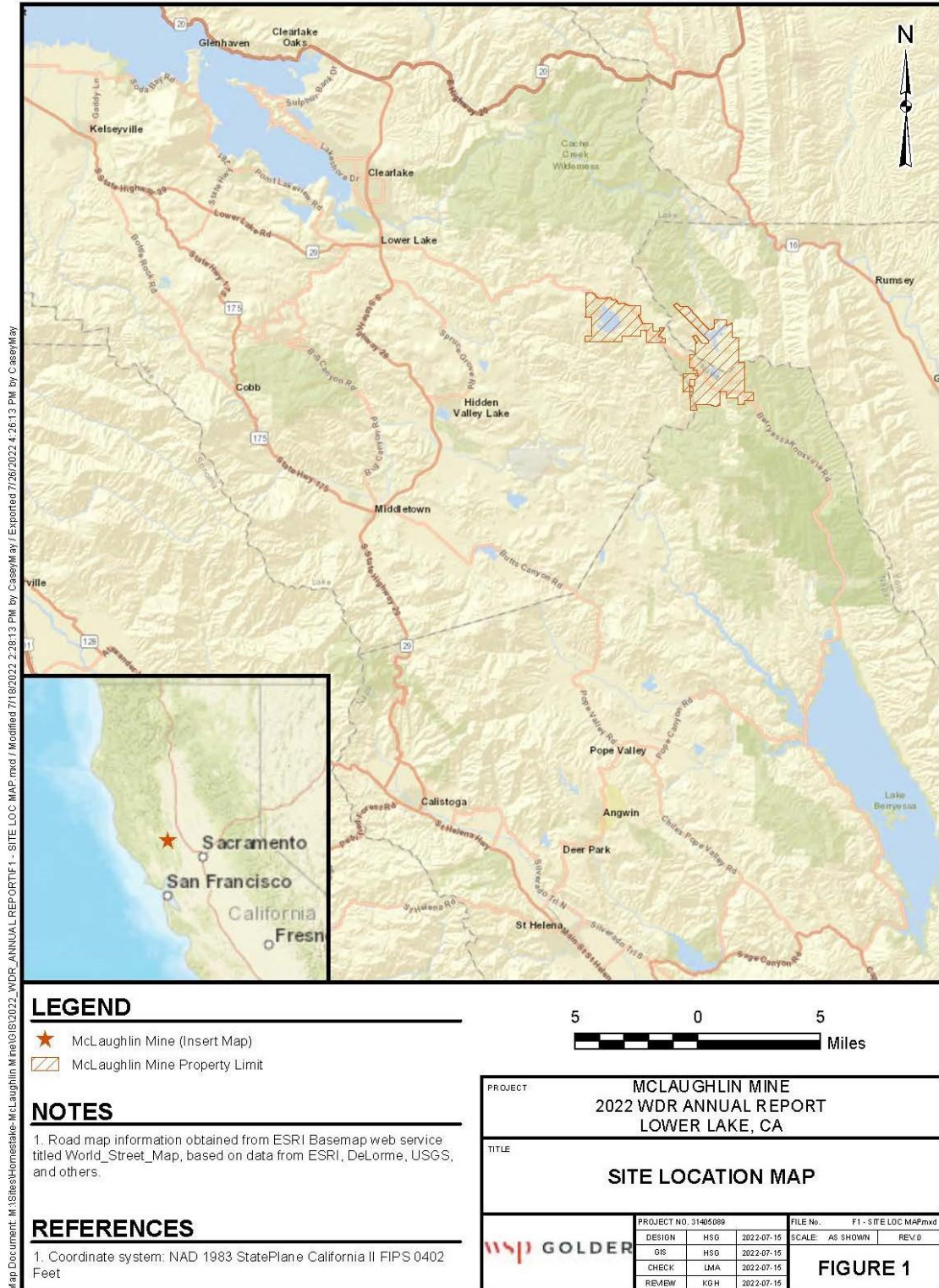
### **ENFORCEMENT**

If, in the opinion of the Executive Officer, the Dischargers fail 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 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 CWC, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

### **ADMINISTRATIVE REVIEW**

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with CWC section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Board by 5:00 pm on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday or state holiday, the petition must be received by the State Water Board by 5:00 pm on the next business day. The law and regulations applicable to filing petitions are available on the State Water Board website ([http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)). Copies will also be provided upon request.

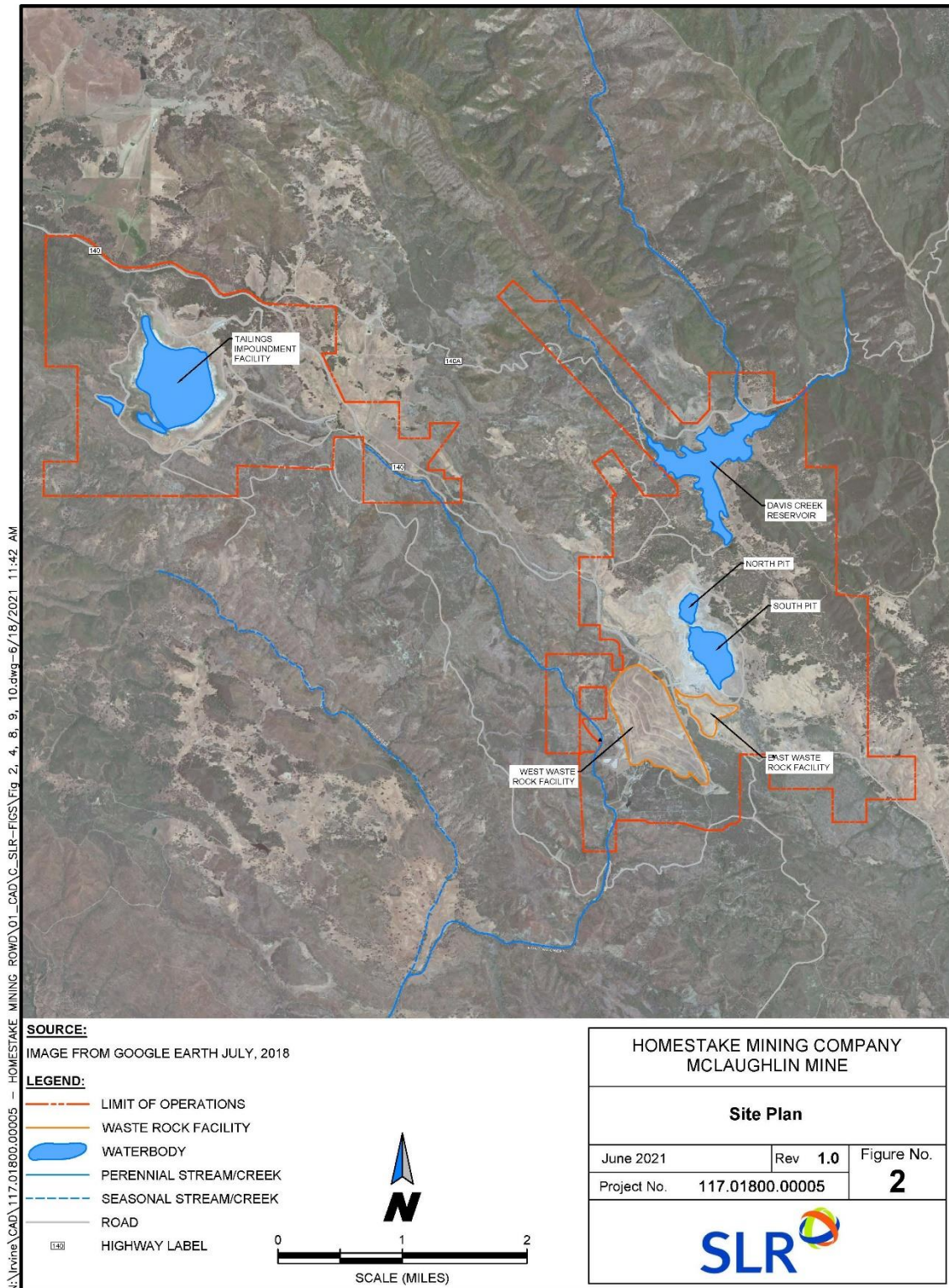
**ATTACHMENT A — LOCATION**



Drawing Reference: 2021-2022 Annual Monitoring Report



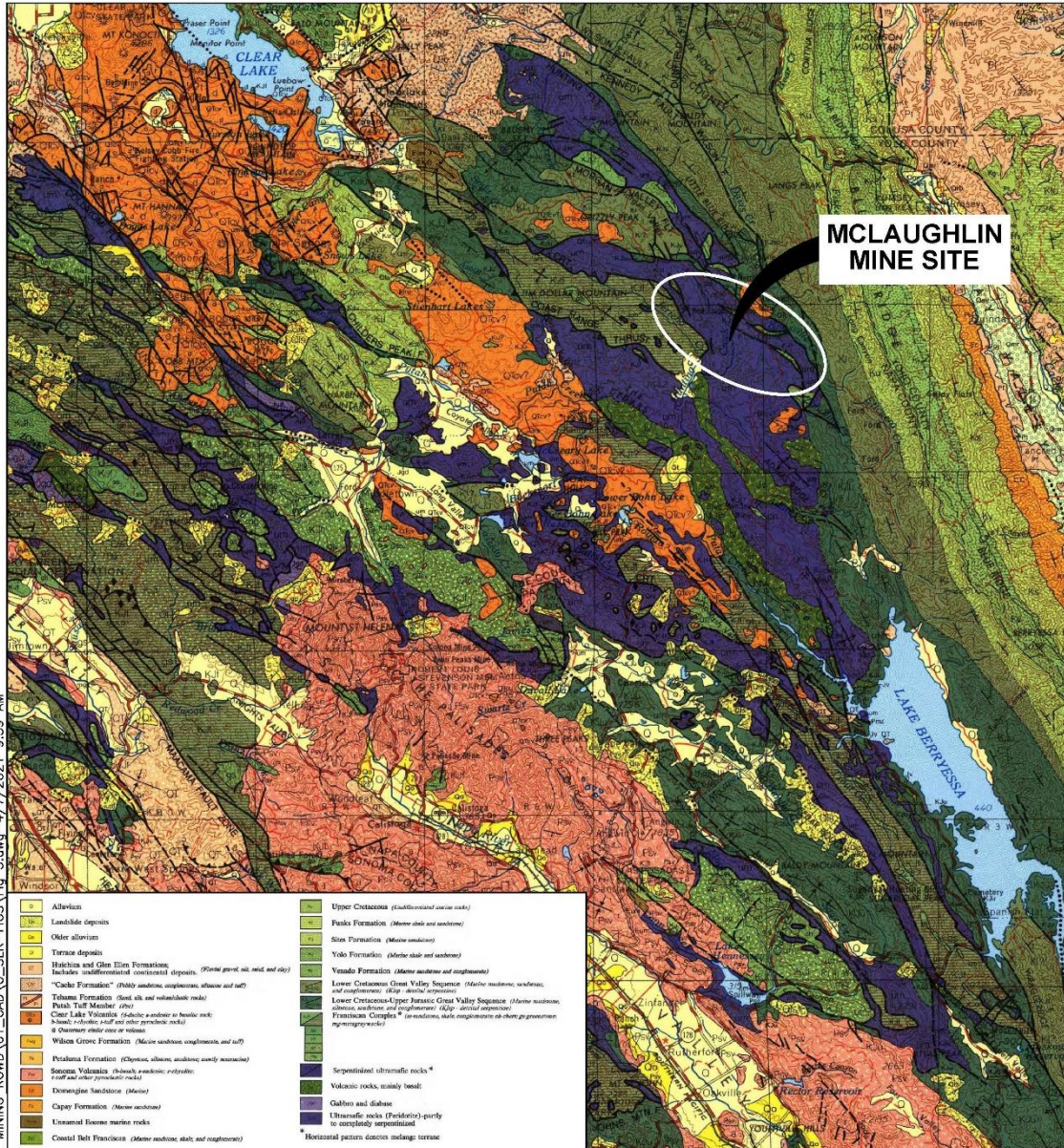
**ATTACHMENT B — FEATURES**



Drawing Reference: 2021 Report of Waste Discharge



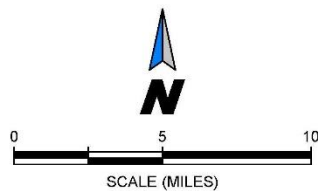
**ATTACHMENT C—REGIONAL GEOLOGY**



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**SOURCE:**

MAP FROM CALIFORNIA DIVISION OF MINES AND GEOLOGY, SANTA ROSA QUADRANGLE - MAP NO. 2A (GEOLOGY) 1982

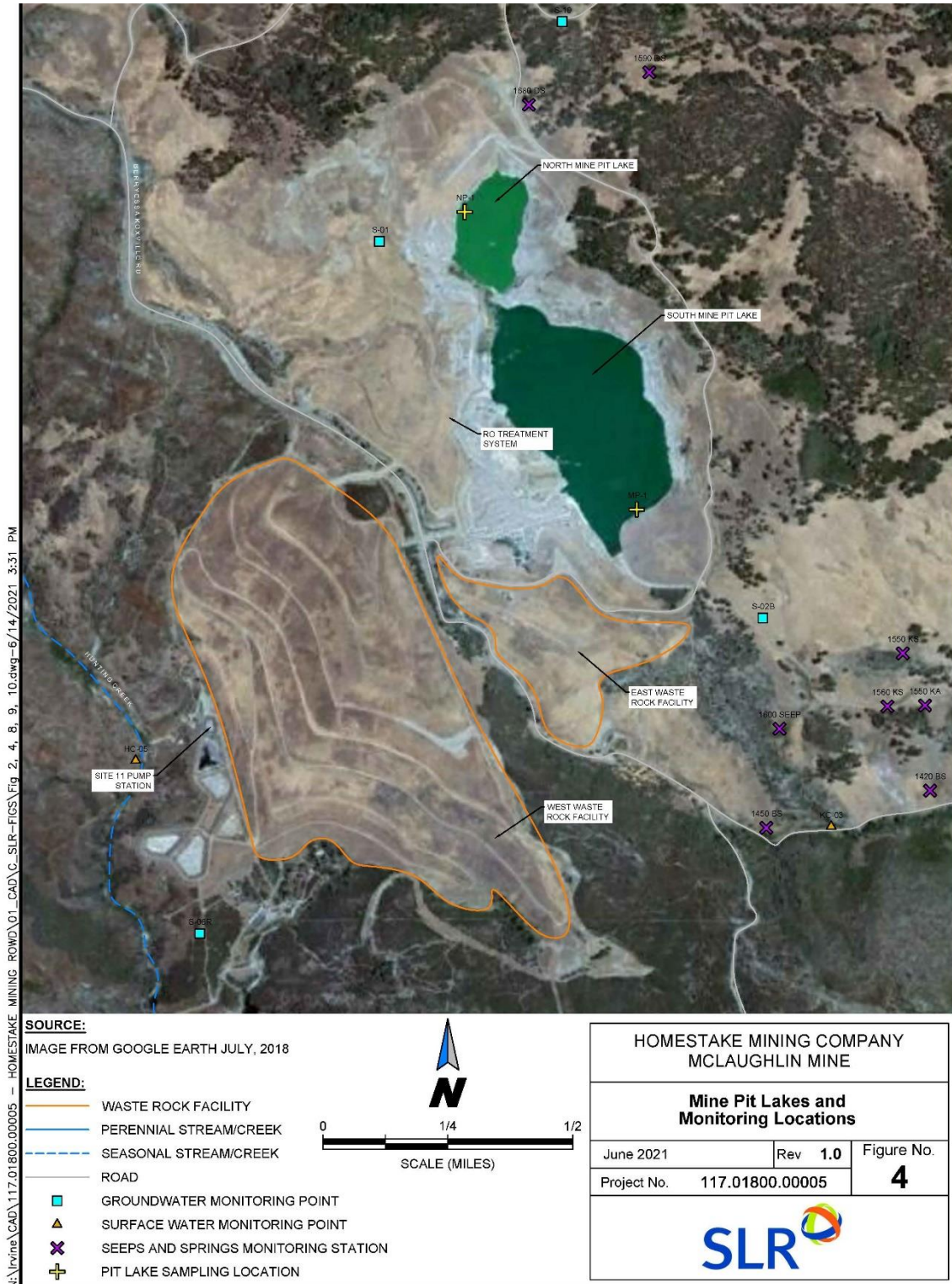


HOMESTAKE MINING COMPANY MCLAUGHLIN MINE		
<b>Regional Geology Map</b>		
June 2021	Rev 1.0	Figure No.
Project No.	117.01800.00005	<b>3</b>



**ATTACHMENT D—MINE PIT AREA WITH MONITORING POINTS**

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Drawing Reference: 2021 Report of Waste Discharge



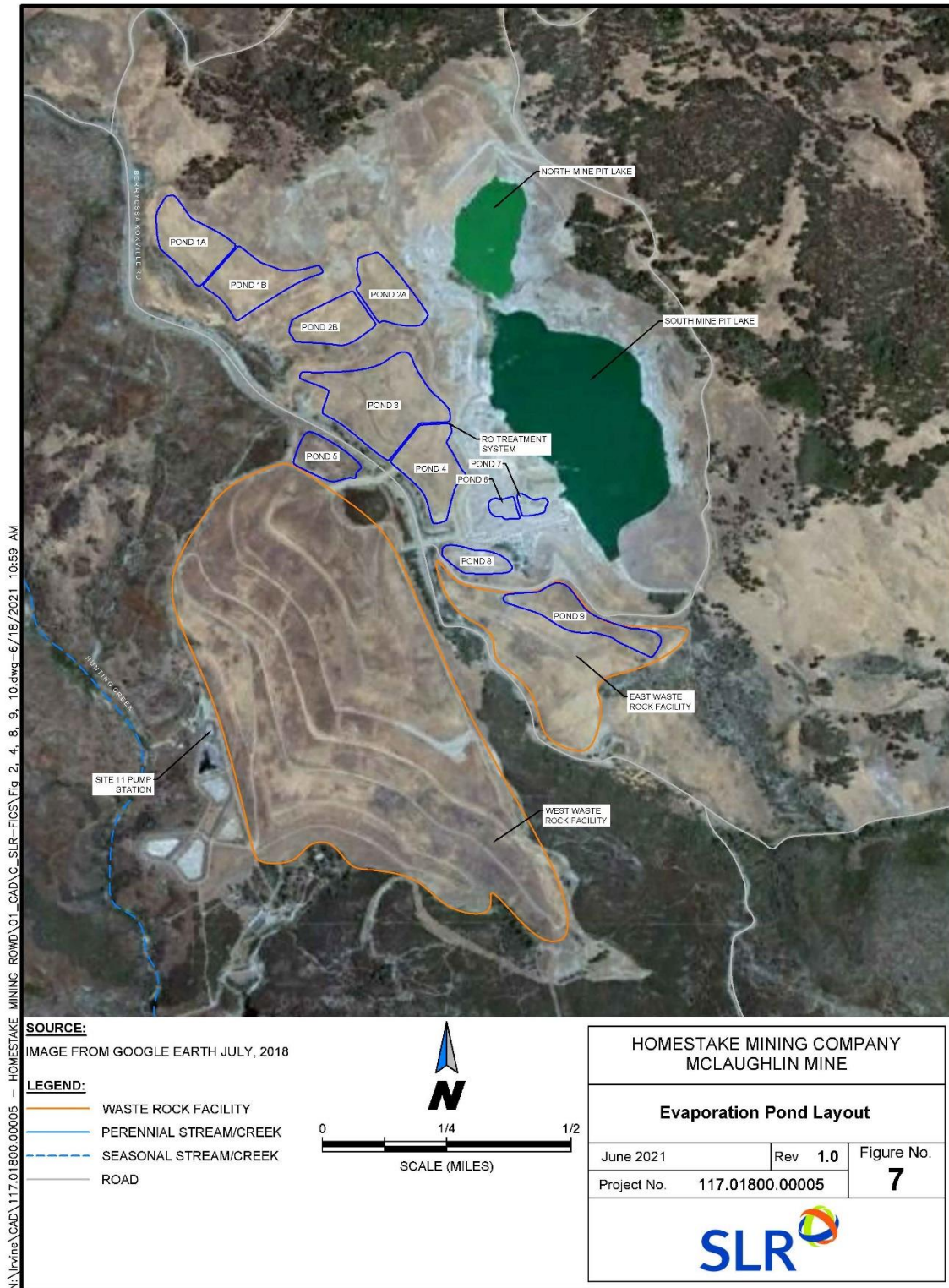
**ATTACHMENT E—TIF AREA AND MONITORING POINTS**



Drawing Reference: 2021 Report of Waste Discharge

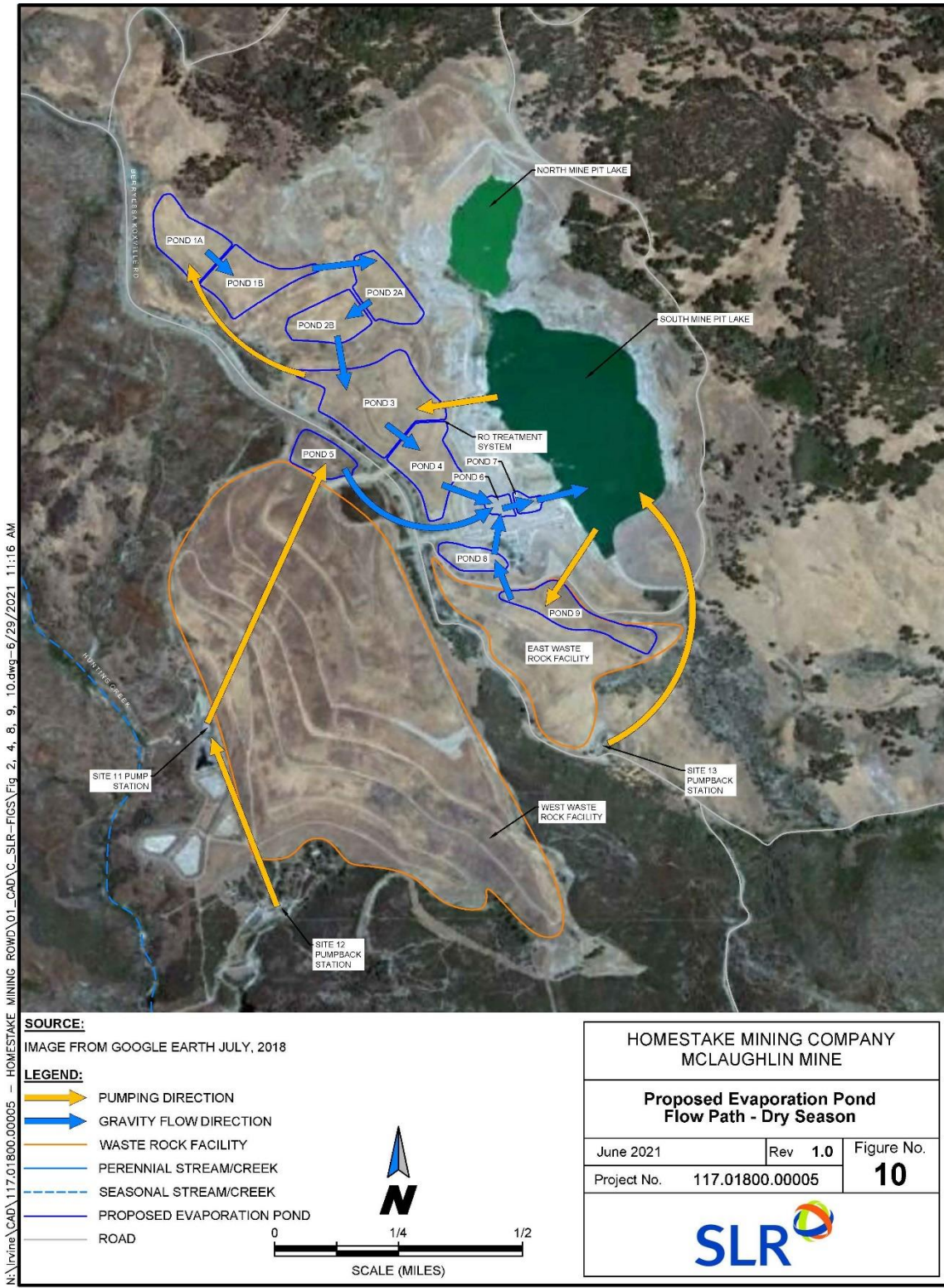


**ATTACHMENT F—EVAPORATION PONDS**



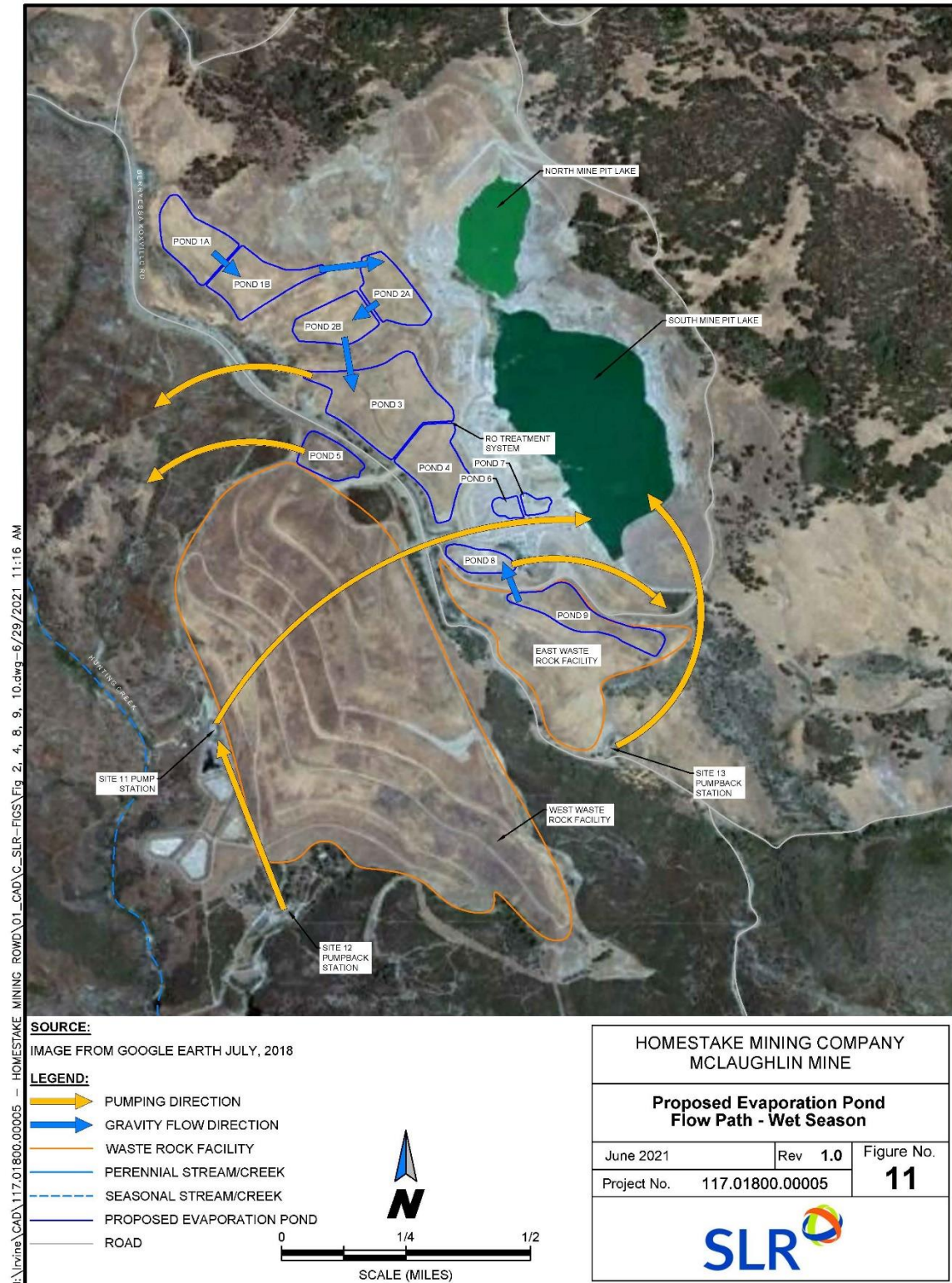
Drawing Reference: 2021 Report of Waste Discharge

**ATTACHMENT G—EVAPORATION POND DRY SEASON FLOW**





**ATTACHMENT H—EVAPORATION POND WET SEASON FLOW**



Drawing Reference: 2021 Report of Waste Discharge

## **STANDARD PROVISIONS & 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.

## Standard Provisions & Reporting Requirements

### 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.

### Standard Provisions & Reporting 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;



### Standard Provisions & Reporting Requirements

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

### **Standard Provisions & Reporting Requirements**

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

### **Standard Provisions & Reporting Requirements**

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

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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

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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,

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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,

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- 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

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- 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 clearly illustrate 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



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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 **purging** 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.

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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

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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

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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.

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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

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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

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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

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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)];



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- 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)].

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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

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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.

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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

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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 overfilling.
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.

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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

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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

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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 side gradient 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.



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- 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.

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- 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.

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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;

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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<sub>water</sub>”** (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.

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- W. “**VOC<sub>spg</sub>**” (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.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER R5-2023-0008  
HOMESTAKE COMPANY OF CALIFORNIA  
MCLAUGHLIN MINE  
LAKE, NAPA, YOLO COUNTIES

**INFORMATION SHEET**

**Background**

Homestake Mining Company of California (Discharger or Homestake), a subsidiary of Barrick Gold Corporation, owns and operates the McLaughlin Mine (Facility), which is located approximately 13 miles southeast of Lower Lake in Lake County. The Facility is now a part of the Donald and Sylvia McLaughlin Natural Reserve (the Reserve), a relatively contiguous block of 6,430 acres. The Reserve is owned jointly by the Discharger and the University of California, Davis (UC Davis). The Discharger continues to own and retains responsibility for the approximately 1,200 acres disturbed by mining.

McLaughlin Mine operated from 1984 to 2002. Mining ended in 1997, but the processing of stockpiled ore continued until 2002, at which time the mine closed. During mining operations, Homestake excavated gold ore from two mining pits (North and South Pit) and discharged waste rock to four Waste Rock Facilities (East, West, North and South Waste Rock Facilities). Mill tailings from the processing facilities were discharged to Tailings Management Facility. Solid and liquid waste contained all facility mining units is classified as Group B mining waste.

During reclamation following the end of mining and processing activities, onsite facilities were decommissioned, disturbed areas and Waste Rock Facilities (WRFs) were regraded, covered, and reclaimed, and the North and South MPs allowed to fill with mining-influenced water (MIW).

The Tailings Impoundment Facility (TIF) consists of a 155-foot high earth-fill dam that blocks a small dry valley. The impoundment contains 38 million tons of tailings on approximately 400 acres. Because the Discharger demonstrated that the TIF can be maintained as a zero-discharge facility, previous Order permitted an engineered alternative to the prescriptive Title 27 closure standard which consisted of placing a soil cover over areas with thin tailings deposits, approximately 320 acres. The remaining 80 acres of tailings, near the center of the impoundment were to remain an uncovered low area with an internal pond. The internal pond was expected to expand and contract seasonally and in response to long term weather patterns. The revised plan left the TIF embankment dam intact without a breach.

On 1 July 2021, the Discharger submitted an updated Report of Waste Discharge (ROWD) proposing the following facility changes:

- c. Revision of TIF closure plan; and
- d. Installation of engineered evaporation ponds as pit water management strategy.

### **Tailings Impoundment Facility**

By 2015, Homestake covered 247 acres of the required 315 acres of TIF surface however, because of the large extent of the internal pond, they have not been able to cover the remaining surface. At the end of 2020, the area covered by the internal pond was 176 acres. As required by the previous Order, Homestake submitted the *TIF Closure Postponement Report McLaughlin Mine* in December 2022, discussing closure infeasibility by 31 December 2021,

The 2021 ROWD included an amended closure plan which includes several measures to reduce the amount of MIW in the central pond, but does not propose to cover any additional TIF tailings areas. The two main measures are to divert outflows from the Duck Pond from the TIF pond, and to cease pumping of the pump back liquids into the TIF pond but instead direct them to an infiltration gallery at the toe of the dam, but didn't provide sufficient information to allow for evaluation of regulatory compliance of this proposal.

This Order requires submittal of an Updated TIF Closure Plan which shall provide a strategy to place additional cover on the uncovered areas if that becomes feasible and provide water quality evaluation and additional information to evaluate the feasibility of infiltration gallery.

### **North and South Pit**

Previous Order specified maximum water elevations in each pit to ensure hydraulic containment of Group B mining-influenced water. This Order continues these requirements. To manage the water levels, Homestake has been using enhanced spray evaporation and water treatment, however, these systems are energy intensive and costly and depend on system reliability to maintain water balance. Therefore, the Discharger proposed to replace them with a series of semi-passive evaporation ponds. This Order regulated construction and operation of evaporation ponds in compliance with approved technical documentation and discharge of pit MIW after approval of Construction Quality Assurance report.