

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

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**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0081809
ORDER R5-2021-0037**

**WASTE DISCHARGE REQUIREMENTS
FOR THE ORIGINAL SIXTEEN TO ONE MINE, INC., SIXTEEN TO ONE MINE, SIERRA
COUNTY**

The following Discharger is subject to waste discharge requirements (WDR's) set forth in this Order:

Table 1. Discharger Information

Discharger:	Original Sixteen to One Mine, Inc.
Name of Facility:	Original Sixteen to One Mine
Facility Street Address:	506 Miners Street
Facility City, State, Zip:	Alleghany, California 95910
Facility County:	Sierra County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Mine Drainage from 21 Tunnel Portal	39° 27' 47" North	120° 50' 22" West	Kanaka Creek

Table 3. Administrative Information

This Order was Adopted on:	17 June 2021
This Order shall become effective on:	1 August 2021
This Order shall expire on:	31 July 2026
The Discharger shall file a Report of Waste Discharge (ROWD) as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a NPDES permit no later than:	31 July 2025
The United States Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor discharge

I, Patrick Pulupa, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **17 June 2021**.

PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the Original Sixteen to One Mine (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

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

- A. Legal Authorities.** This Order serves as waste discharge requirements (WDR's) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDR's in this Order.
- B. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of Public Resources Code.
- C. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through H are also incorporated into this Order.
- D. Monitoring and Reporting.** 40 Code of Federal Regulations (C.F.R.) section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters 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.”

The Discharger owns and operates the Facility subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

- E. Notification of Interested Persons.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR’s for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.
- F. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that Order R5-2015-0002 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for violations of the previous Orders.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of mining waste generated in a different manner or discharged to a location different from that described in the Fact Sheet in section II.B in this Order is prohibited.
- B.** Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.
- C.** Discharge of waste classified as ‘hazardous’, as defined in the California Code of Regulations, title 22, section 66261.1 et seq., is prohibited.
- D. Average Dry Weather Flow.** Discharges exceeding an average dry weather flow of 0.28 million gallons per day (MGD) are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001. Unless otherwise specified compliance shall be measured at Monitoring Location EFF-001, as described in the Monitoring and Reporting Program, Attachment E:

- a. The Discharger shall maintain compliance with the effluent limitations specified in Table 4:

Table 4. Effluent Limitations

Parameter	Units	Average Monthly	Maximum Daily
Total Suspended Solids	Milligrams per liter (mg/L)	20	30
Mercury, Total	Micrograms per liter (µg/L)	1	2
Cadmium, Total	µg/L	50	100
Copper, Total	µg/L	150	300
Zinc, Total	µg/L	750	1,500
Lead, Total	µg/L	300	600
Antimony, Total	µg/L	5.6	11
Arsenic, Total	µg/L	10	22
Iron, Total	µg/L	590	770
Nickel, Total	µg/L	45	89

- b. **pH:**
 - i. 6.5 Standard Units (SU) as an instantaneous minimum.
 - ii. 8.5 SU as an instantaneous maximum.
- c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. 70%, minimum for any one bioassay; and
 - ii. 90%, median for any three consecutive bioassays.
- d. **Electrical Conductivity.** For a calendar year, the annual average effluent concentration shall not exceed 2,200 micromhos per centimeter (µmhos/cm).

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Kanaka Creek:

1. **Bacteria.** The six-week rolling geometric mean of Escherichia coli (E. coli) shall not exceed 100 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a statistical threshold value (STV) of 320 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95-percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.

9. **Pesticides:**

- a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
- b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
- c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by U.S. EPA or the Executive Officer;
- d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR section 131.12.);
- e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
- f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15; nor
- g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
15. **Temperature.** The natural temperature to be increased by more than 5° Fahrenheit (°F). Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
17. **Turbidity.**
 - a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
 - b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
 - c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
 - d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
 - e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:
 - a. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;

- ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
- iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
- iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- i. New regulations. New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- ii. Land application plans. When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- iii. Change in sludge use or disposal practice. Under 40 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Central Valley Water Board may review and revise this Order at any time upon application of any affected person or the Central Valley Water Board's own motion.

- b. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

- c. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

- i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
- ii. Controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

- d. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- e. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- f. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- g. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

- h. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning,

investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

- i. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- j. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
- k. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.
- l. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit shall continue in force and effect until the permit is reissued or the Regional Water Board rescinds the permit.
- m. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

- n. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E.

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Reclassification of Mine Drainage.** If analytical monitoring results consistently indicate that the mine's treatment system or best management practices reduce constituent concentrations below water quality objectives, the mine drainage may be reassessed and this Order may be reopened and modified.

- d. **New Milling Activities.** If the Discharger initiates milling activities, this Order may be reopened to include new or modified monitoring requirements and effluent limitations.
- e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.
- f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total when developing effluent limitations for nickel. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- g. **Dilution/Mixing Zones Study.** If the Discharger performs a Dilution/Mixing Zone Study that supports the allowance of a mixing zone(s), the Central Valley Water Board may reopen this Order to include effluent limitations based on the appropriate dilution factor for the protection of aquatic life or human health and effluent and receiving water monitoring to verify the mixing zone is protective of water quality.
- h. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the [Central Valley Salinity Alternatives for Long-Term Sustainability \(CV-SALTS\) web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/):
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Toxicity Reduction Evaluation Requirements.** This Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is

required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.

- i. **Numeric Toxicity Monitoring Trigger.** The numeric Toxicity Unit (TUc) monitoring trigger is >1 TUc (where $TUc = 100/NOEC$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold above which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection ii, below.
- ii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic whole effluent toxicity result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:
 - (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as $100/EC_{25}$) AND/OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, proceed to step (b).
 - (b) **Evaluate 6-week Median.** The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as $100/EC_{25}$) and the percent effect is greater than 25 percent at 100 percent effluent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring. See Compliance Determination Section VII.C for procedures for calculating 6-week median.
 - (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a

site-specific TRE or participate in an approved TES as described in the following subsections.

- (d) **Toxicity Evaluation Study.** If the percent effect is ≤ 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
- (e) **Toxicity Reduction Evaluation.** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:
- (i) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
- Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.

3. Best Management Practices and Pollution Prevention

- a. **Annual Best Management Practices Report.** The Discharger is in the process of installing best management practices to minimize pollutant concentrations in the effluent. An annual status report regarding the implementation of best management practices shall be submitted to the Central Valley Water Board including:
- i. A summary of all actions undertaken pursuant to best management practices including, but not limited to:
- (a) any treatment installed to reduce pollutant concentrations

- (b) mine maintenance activities that have the potential to affect pollutant concentrations in the effluent
 - (c) actions taken to reduce infiltration into the mine workings
 - ii. A description of actions to be taken in the following year
- b. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility. The plan shall be completed and submitted to the Central Valley Water Board by the due date in the Technical Reports Table of this Order.

The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge.

- 4. **Construction, Operation and Maintenance Specifications – Not Applicable**
- 5. **Special Provisions for Publicly-Owned Treatment Works (POTW’s) – Not Applicable**
- 6. **Other Special Provisions**
 - a. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if and when there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.
- 7. **Compliance Schedules – Not Applicable**

VII. COMPLIANCE DETERMINATION

- A. **Priority Pollutant Effluent Limitations.** Compliance with effluent limitations for priority pollutants shall be determined in accordance with section 2.4.5 of the SIP, as follows:
 - 1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
 - 2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
 - a. sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or

- b. sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
 3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
 4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall **not** be deemed out of compliance.
- B. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c).** Quarterly receiving water monitoring is required in the Monitoring and Reporting Program (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this Order. Quarterly receiving water monitoring data, measured at monitoring locations RSW-001 and RSW-002 will be used to determine compliance with part “c” of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in the Kanaka Creek to be reduced below 7.0 mg/L at any time. However, should more frequent dissolved oxygen receiving water monitoring be conducted, Central Valley Water Board staff may evaluate compliance with parts “a” and “b”.
- C. Chronic Whole Effluent Toxicity Effluent Trigger (Section VI.C.2.a.ii).** To evaluate compliance with the chronic whole effluent toxicity effluent trigger, the median chronic toxicity units (TUc) shall be the median of up to three consecutive chronic toxicity bioassays during a six- week period. This includes a routine chronic toxicity monitoring event and two subsequent optional compliance monitoring events. If additional compliance monitoring events are not conducted, the median is equal to the result for routine chronic toxicity monitoring event. If only one additional compliance monitoring event is conducted, the median will be established as the arithmetic mean of the routine monitoring event and compliance monitoring event.

Where the median chronic toxicity units exceed 1 TUc (as 100/NOEC) for any end point, the Discharger will be deemed as exceeding the chronic toxicity effluent trigger if the median chronic toxicity units for any endpoint also exceed a reporting level of 1.3 TUc (as 100/EC25) AND the percent effect at 100% effluent exceeds 25 percent. The percent effect used to evaluate compliance with the chronic toxicity effluent trigger shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent trigger.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

$$\text{Arithmetic mean} = \mu = \Sigma x / n$$

where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Bioaccumulative

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic

Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effect Concentration (EC)

A point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC25 is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms.

Effluent Concentration Allowance (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Endpoint

An effect that is measured in a toxicity study. Endpoints in toxicity tests may include, but are not limited to survival, reproduction, and growth.

Estimated Chemical Concentration

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Inhibition Concentration

Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal biological measurement (e.g., reproduction or growth), calculated from a continuous model (i.e., Interpolation Method). IC25 is a point estimate of the toxic concentration that would cause a 25-percent reduction in a non-lethal biological measurement.

Inland Surface Waters

All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)

MDL is the minimum measured concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in in 40 C.F.R. Part 136, Attachment B.

Minimum Level (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mining Waste

Defined in the Porter-Cologne Water Quality Control Act (California Water Code, division 7) as *“Mining waste’ means all solid, semisolid, and liquid waste materials from the extraction, beneficiation, and processing of ores and minerals. Mining Waste includes, but is not limited to, soil, waste rock, and, overburden, as defined in Section 2712 of the Public Resources Code, and tailings, slag, and other processed waste materials...”*

Mixing Zone

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

No-Observed-Effect-Concentration (NOEC)

The highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle (short-term) test, that causes no observable adverse effects on the test organisms (i.e., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls).

Not Detected (ND)

Sample results which are less than the laboratory’s MDL.

Percent Effect

The percent effect at the instream waste concentration (IWC) shall be calculated using untransformed data and the following equation:

$$\text{Percent Effect of the Sample} = \frac{\text{Mean Control Response} - \text{Mean Sample Response}}{\text{Mean Control Response}} \cdot 100$$

Persistent Pollutants

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or Central Valley Water Board.

Source of Drinking Water

Any water designated as municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan.

Standard Deviation (σ)

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum [(x - \mu)^2] / (n - 1))^{0.5}$$

where:

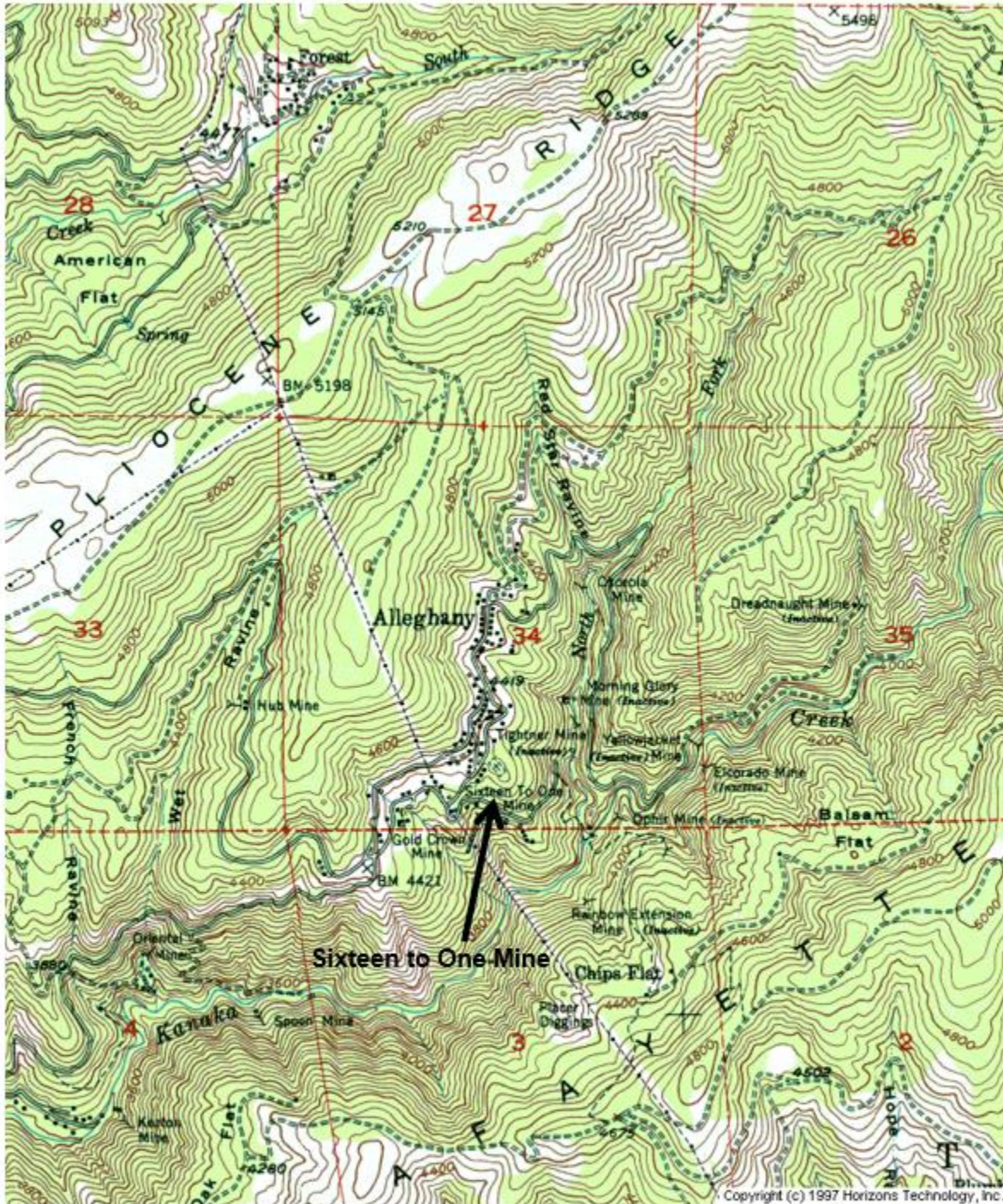
x is the observed value;


m is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE)

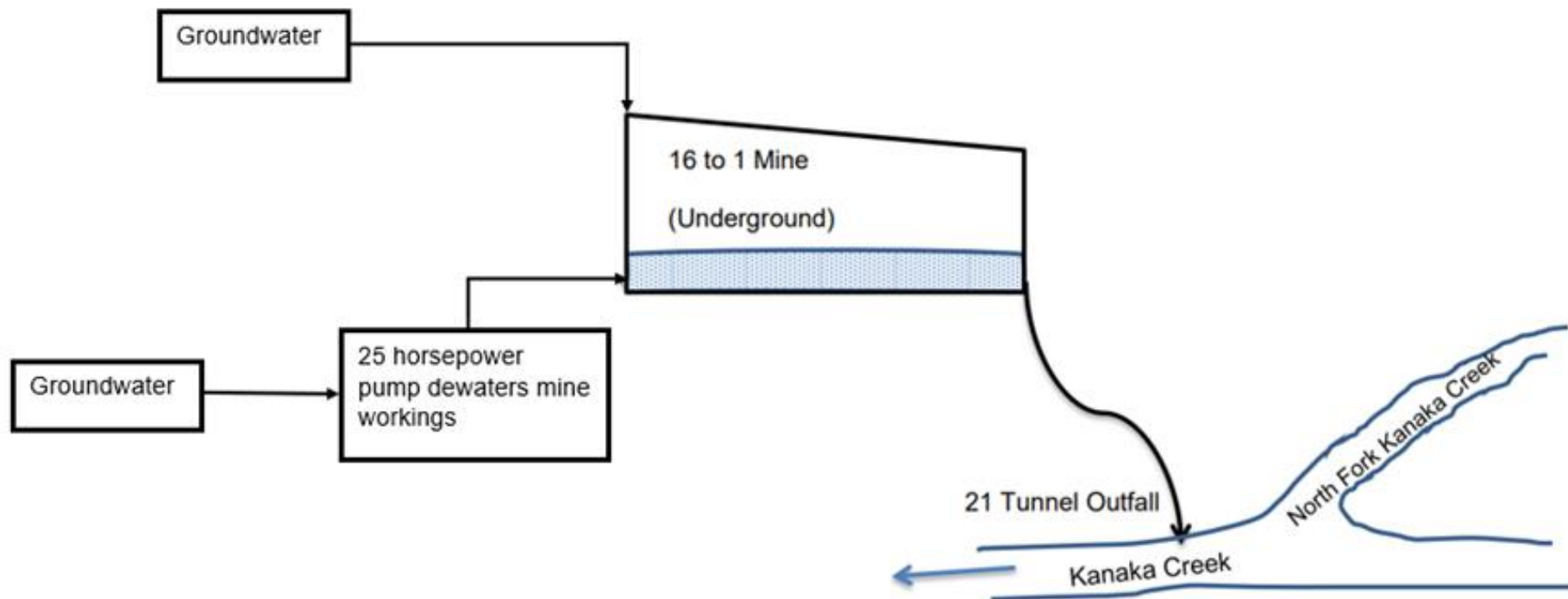
TRE is a study conducted in a stepwise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



<p>DRAWING REFERENCE: Alleghany Quadrangle U.S.G.S Topographic Map 7.5 Minute Quadrangle Sec. 34, T19N, R10E, MDB&M, Not to scale</p>	<p>SITE LOCATION MAP Original Sixteen to One Mine, Inc. Sixteen to One Mine Sierra County</p>	
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ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply:

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. section 122.41(a); Wat. Code, sections 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. section 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. section 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. section 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes having adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. section 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. section 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. section 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. section 1318(a)(4)(B); 40 C.F.R. section 122.41(i); Wat. Code, section 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(1); Wat. Code, sections 13267, 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(2); Wat. Code, sections 13267, 13383);
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(3); Wat. Code, section 13267, 13383); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C section 1318(a)(4)(B); 40 C.F.R. section 122.41(i)(4); Wat. Code, sections 13267, 13383.)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. section 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. section 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not

subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. section 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. section 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. section 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. section 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. section 122.41(m)(4)(i)(C).)
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. section 122.41(m)(4)(ii).)
5. **Notice**
 - a. **Anticipated bypass.** If the Discharger knows in advance of the need for a bypass, it shall submit prior notice if possible, at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board’s [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(i).)
 - b. **Unanticipated bypass.** The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board’s [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), defined in

Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. section 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. section 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. section 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. section 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 C.F.R. section 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. section 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. section 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. section 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. section 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. section 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. section 122.41(l)(3); 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. section 122.41(j)(1).)

B. Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. Part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when the method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. chapter 1, subchapter N or O for the measured pollutant or pollutant parameter, or when:

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:
 - a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;
 - b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is

high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge;

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. Part 136 or otherwise required under 40 C.F.R. chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. sections 122.21(e)(3), 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. section 122.41(j)(2).)
- B.** Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements (40 C.F.R. section 122.41(j)(3)(i));
 2. The individual(s) who performed the sampling or measurements (40 C.F.R. section 122.41(j)(3)(ii));
 3. The date(s) analyses were performed (40 C.F.R. section 122.41(j)(3)(iii));
 4. The individual(s) who performed the analyses (40 C.F.R. section 122.41(j)(3)(iv));
 5. The analytical techniques or methods used (40 C.F.R. section 122.41(j)(3)(v)); and
 6. The results of such analyses. (40 C.F.R. section 122.41(j)(3)(vi).)
- C.** Claims of confidentiality for the following information will be denied (40 C.F.R. section 122.7(b)):
1. The name and address of any permit applicant or Discharger (40 C.F.R. section 122.7(b)(1)); and
 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. section 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. section 122.41(h); Wat. Code, sections 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. section 122.41(k).)
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. section 122.22(a)(1).)
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. section 122.22(b)(1));
 - b. 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 well or a well field,

superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. section 122.22(b)(2)); and

- c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. section 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. section 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. section 122.22(d).)
6. Any person providing the electronic signature for such documents described in Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R section 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. section 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of 21 December 2016, all reports and forms must be submitted

electronically to the initial recipient, defined in Standard Provisions – Reporting V.J, and comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. section 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. section 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. section 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. section 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

As of 21 December 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. They may also

require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. section 122.41(l)(6)(i).)

F. Planned Changes

The Discharger shall give notice to the Central Valley Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. section 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. section 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions— Notification Levels VII.A.1). (40 C.F.R. section 122.41(l)(1)(ii).)
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. section 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. section 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. section 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. section 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the appropriate initial recipient, as determined by U.S. EPA, and as defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. section 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Central Valley Water Board as soon as they know or have reason to believe (40 C.F.R. section 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. section 122.42(a)(1)):
 - a. 100 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. section 122.42(a)(1)(i));
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. section 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. section 122.42(a)(1)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. section 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. section 122.42(a)(2)):
 - a. 500 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. section 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. section 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. section 122.42(a)(2)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. section 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. section 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Final effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory accredited for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health), in accordance with the provision of Water Code section 13176. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event an accredited laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a non-accredited laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

- E.** Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F.** Laboratory analytical methods shall be sufficiently sensitive in accordance with the Sufficiently Sensitive Methods Rule (SSM Rule) specified under 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). A U.S. EPA-approved analytical method is sufficiently sensitive for a pollutant/parameter where:

 - 1. The method minimum level (ML) is at or below the applicable water quality objective for the receiving water, or;
 - 2. The method ML is above the applicable water quality objective for the receiving water but the amount of the pollutant/parameter in the discharge is high enough that the method detects and quantifies the level of the pollutant/parameter, or;
 - 3. the method ML is above the applicable water quality objective for the receiving water, but the ML is the lowest of the 40 C.F.R. 136 U.S. EPA-approved analytical methods for the pollutant/parameter.
- G.** The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Resources Control Board at the following address or electronically via email to the DMR-QA Coordinator:

State Water Resources Control Board
Quality Assurance Program Officer
Office of Information Management and Analysis
1001 I Street, Sacramento, CA 95814
- H.** The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I.** The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	EFF-001	21 Tunnel Portal Discharge where a representative sample can be collected prior to where the effluent enters Kanaka Creek Latitude: 39° 27' 47" North - Longitude: 120° 50' 22" West
--	RSW-001	In Kanaka Creek, 100 feet upstream of Discharge Point 001 Latitude: 39° 27' 49" North - Longitude: 120° 50' 20" West
--	RSW-002	In Kanaka Creek, 300 feet downstream of Discharge Point 001 Latitude: 39° 27' 43" North - Longitude: 120° 50' 26" West

The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor 21 Tunnel Portal mine drainage at Monitoring Location EFF-001 in accordance with Table E-2 and the testing requirements described in section IV.A.2 below. Effluent monitoring at EFF-001 shall be conducted concurrently with receiving water monitoring at RSW-001 and RSW-002.

Table E-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Estimate	1/Quarter
Dissolved Oxygen	mg/L	Grab	1/Quarter
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Quarter
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter
pH	SU	Grab	1/Quarter
Total Suspended Solids (TSS)	mg/L	Grab	1/Quarter
Antimony, Total	µg/L	Grab	1/Quarter
Arsenic, Total	µg/L	Grab	1/Quarter
Cadmium, Total	µg/L	Grab	1/Quarter

Parameter	Units	Sample Type	Minimum Sampling Frequency
Copper, Total	µg/L	Grab	1/Quarter
Iron, Total	µg/L	Grab	1/Quarter
Lead, Total	µg/L	Grab	1/Quarter
Mercury, Total	µg/L	Grab	1/Quarter
Nickel, Total	µg/L	Grab	1/Quarter
Zinc, Total	µg/L	Grab	1/Quarter

2. **Table E-2 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-2:

- a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 C.F.R. part 136 allowed sample type.
- b. **Hand-held Field Meter.** A hand-held field meter may be used for **pH, electrical conductivity, and dissolved oxygen**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- c. **Hardness** samples shall be collected concurrently with metals samples.
- d. **Total Mercury.** Total mercury samples shall be taken using **clean hands/dirty hands procedures**, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2). The analysis of methyl mercury and total mercury shall be by U.S. EPA method 1630 and 1631 (Revision E), respectively, with a **reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury**.
- e. **Iron, Total.** Total iron samples may be filtered through a 1.5-micron filter upon sample collection in accordance with the Basin Plan.
- f. **Flow.** One method of estimating flow rate:
 - Width of Test Section = W (feet)
 - Average Depth of Test Section = D (feet)
 - Length of Test Section = L (feet)
 - Travel Time for Object

Flowing Length of Test Section	= T (seconds)
Flow Velocity	= $V = L \div T$ (feet per second)
Cross Sectional Area	= $A = W \times D$ (square feet)
Flow Rate	= $Q = V \times A$ (cubic feet/second) = $V \times A \times 0.64632$ (MGD)

This method or another comparable method shall be used to estimate flow. If this method is not used, the method used must be clearly explained in the monitoring report.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Chronic Toxicity Testing (and Acute Toxicity Testing). The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The results of the Chronic Toxicity Test include acute toxicity results and will be used to determine compliance with the Acute Toxicity Effluent Limitation. The Discharger shall meet the chronic toxicity testing requirements:

- 1. Monitoring Frequency** – The Discharger shall perform the three species chronic toxicity test **once per permit term concurrently with the Effluent and Receiving Water Characterization (MRP, X.A)**. If the result of the chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TUc (as 100/EC25) **AND** a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and perform chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at least one week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity. See Compliance Determination section VII.C for procedures for calculating 6-week median.
- 2. Sample Types** – Effluent samples shall grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.
- 3. Sample Volumes** – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
- 4. Test Species** – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

- a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test)
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test).
5. **Methods** – The presence of chronic toxicity shall be estimated as specified in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002.
6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. **Dilutions** – For routine and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-3, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-3. Chronic Toxicity Testing Dilution Series

Samples	Dilution%	Dilution%	Dilution%	Dilution%	Dilution%	Controls
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
- a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in the Method Manual.

C. WET Testing Notification Requirements. The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the chronic toxicity monitoring trigger, or an exceedance of the acute toxicity effluent limitation.

D. WET Testing Reporting Requirements. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Routing and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the within 30 days following completion of the test, and shall contain, at minimum:
 - a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The percent effect for each endpoint at 100 percent effluent.
 - c. The statistical methods used to calculate endpoints;
 - d. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - e. The dates of sample collection and initiation of each toxicity test; and
 - f. The results compared to the numeric toxicity monitoring trigger.
2. **TRE Reporting.** Reports for TRE's shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.
3. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Kanaka Creek at RSW-001 and RSW-002 in accordance with Table E-4 and the testing requirements described in section VIII.A.2 below. Receiving water monitoring at RSW-001 and RSW-002 shall be conducted concurrently with effluent monitoring at EFF-001.

Table E-4. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Estimate	1/Quarter
Dissolved Oxygen	mg/L	Grab	1/Quarter
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Quarter
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter
pH	SU	Grab	1/Quarter
Temperature	°F	Grab	1/Quarter
Turbidity	NTU	Grab	1/Quarter
Arsenic, Total	µg/L	Grab	1/Quarter

2. **Table E-4 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-4:
 - a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 C.F.R. part 136 allowed sample type.
 - b. **Hand-held Field Meter.** A hand-held field meter may be used for **temperature, electrical conductivity, dissolved oxygen, and pH**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
 - c. **Flow.** One method of estimating flow rate:

Width of Test Section	= W (feet)
Average Depth of Test Section	= D (feet)
Length of Test Section	= L (feet)
Travel Time for Object	

Flowing Length of Test Section	= T (seconds)
Flow Velocity	= $V = L \div T$ (feet per second)
Cross Sectional Area	= $A = W \times D$ (square feet)
Flow Rate	= $Q = V \times A$ (cubic feet/second) = $V \times A \times 0.64632$ (MGD)

This method or another comparable method shall be used to estimate flow. If this method is not used, the method used must be clearly explained in the monitoring report.

3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002 when discharging to the Kanaka Creek. Attention shall be given to the presence of:
 - a. Floating or suspended matter;
 - b. Discoloration;
 - c. Bottom deposits;
 - d. Aquatic life;
 - e. Visible films, sheens, or coatings;
 - f. Fungi, slimes, or objectionable growths; and
 - g. Potential nuisance conditions.

Notes on receiving water conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS

A. Effluent and Receiving Water Characterization

1. Monitoring Frequency

- a. **Effluent Sampling.** Samples shall be collected and analyzed from the effluent (Monitoring Location EFF-001) **twice in 2022, once between 1 April 2022 and 30 June 2022** for the constituents listed in Table E-5, and **once between 1 July 2022 and 30 September 2022** for only constituents listed under the Inorganics, Non-Metal/Minerals Constituents, Conventional Parameters, Non-Conventional Parameters, and Other Constituents of Concern in Table E-5 below.
- b. **Receiving Water Sampling.** Samples shall be collected from the upstream receiving water (Monitoring Location RSW-001) **twice in 2022,**

once between **1 April 2022 and 30 June 2022** for the constituents listed in Table E-5, and **once** between **1 July 2022 and 30 September 2022** for only constituents listed under the Inorganics, Non-Metal/Minerals Constituents, Conventional Parameters, Non-Conventional Parameters, and Other Constituents of Concern in Table E-5 below.

Constituents shall be collected and analyzed consistent with the Discharger’s Analytical Methods Report (MRP, X.D.2) using sufficiently sensitive analytical methods and Reporting Levels per the SSM Rule specified in 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). The “Reporting Level” is synonymous with the “Method Minimum Level” described in the SSM Rule. The results of the monitoring shall be submitted to the Central Valley Water Board with the quarterly self-monitoring reports. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

2. **Analytical Methods Report Certification.** Prior to beginning the Effluent and Receiving Water Characterization monitoring, the Discharger shall provide a certification acknowledging the scheduled start date of the Effluent and Receiving Water Characterization monitoring and confirming that samples will be collected and analyzed as described in the previously submitted Analytical Methods Report. If there are changes to the previously submitted Analytical Methods Report, the Discharger shall outline those changes. A one-page certification form will be provided by Central Valley Water Board staff with the permit’s Notice of Adoption that the Discharger can use to satisfy this requirement. The certification form shall be submitted electronically via CIWQS submittal by the due date in the Technical Reports Table.
3. The Discharger shall conduct effluent and receiving water characterization monitoring in accordance with Table E-5 and the testing requirements described in section IX.A.4 below.

Table E-5. Effluent and Receiving Water Characterization Monitoring

VOLATILE ORGANICS

CTR Number	Volatile Organic Parameters	CAS Number	Units	Effluent Sample Type
25	2-Chloroethyl vinyl Ether	110-75-8	µg/L	Grab
17	Acrolein	107-02-8	µg/L	Grab
18	Acrylonitrile	107-13-1	µg/L	Grab
19	Benzene	71-43-2	µg/L	Grab
20	Bromoform	75-25-2	µg/L	Grab
21	Carbon Tetrachloride	56-23-5	µg/L	Grab
22	Chlorobenzene	108-90-7	µg/L	Grab
24	Chloroethane	75-00-3	µg/L	Grab
26	Chloroform	67-66-3	µg/L	Grab
35	Methyl Chloride	74-87-3	µg/L	Grab

CTR Number	Volatile Organic Parameters	CAS Number	Units	Effluent Sample Type
23	Dibromochloromethane	124-48-1	µg/L	Grab
27	Dichlorobromomethane	75-27-4	µg/L	Grab
36	Methylene Chloride	75-09-2	µg/L	Grab
33	Ethylbenzene	100-41-4	µg/L	Grab
89	Hexachlorobutadiene	87-68-3	µg/L	Grab
34	Methyl Bromide (Bromomethane)	74-83-9	µg/L	Grab
94	Naphthalene	91-20-3	µg/L	Grab
38	Tetrachloroethylene (PCE)	127-18-4	µg/L	Grab
39	Toluene	108-88-3	µg/L	Grab
40	trans-1,2-Dichloroethylene	156-60-5	µg/L	Grab
43	Trichloroethylene (TCE)	79-01-6	µg/L	Grab
44	Vinyl Chloride	75-01-4	µg/L	Grab
21	Methyl-tert-butyl ether (MTBE)	1634-04-4	µg/L	Grab
41	1,1,1-Trichloroethane	71-55-6	µg/L	Grab
42	1,1,2-Trichloroethane	79-00-5	µg/L	Grab
28	1,1-Dichloroethane	75-34-3	µg/L	Grab
30	1,1-Dichloroethylene (DCE)	75-35-4	µg/L	Grab
31	1,2-Dichloropropane	78-87-5	µg/L	Grab
32	1,3-Dichloropropylene	542-75-6	µg/L	Grab
37	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	Grab
101	1,2,4-Trichlorobenzene	120-82-1	µg/L	Grab
29	1,2-Dichloroethane	107-06-2	µg/L	Grab
75	1,2-Dichlorobenzene	95-50-1	µg/L	Grab
76	1,3-Dichlorobenzene	541-73-1	µg/L	Grab
77	1,4-Dichlorobenzene	106-46-7	µg/L	Grab

SEMI-VOLATILE ORGANICS

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
60	Benzo(a)Anthracene	56-55-3	µg/L	Grab
85	1,2-Diphenylhydrazine	122-66-7	µg/L	Grab
45	2-Chlorophenol	95-57-8	µg/L	Grab
46	2,4-Dichlorophenol	120-83-2	µg/L	Grab
47	2,4-Dimethylphenol	105-67-9	µg/L	Grab
49	2,4-Dinitrophenol	51-28-5	µg/L	Grab
82	2,4-Dinitrotoluene	121-14-2	µg/L	Grab
55	2,4,6-Trichlorophenol	88-06-2	µg/L	Grab
83	2,6-Dinitrotoluene	606-20-2	µg/L	Grab
50	2-Nitrophenol	88-75-5	µg/L	Grab
71	2-Chloronaphthalene	91-58-7	µg/L	Grab
78	3,3-Dichlorobenzidine	91-94-1	µg/L	Grab
62	Benzo(b)Fluoranthene	205-99-2	µg/L	Grab

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
52	4-Chloro-3-methylphenol	59-50-7	µg/L	Grab
48	2-Methyl-4,6-Dinitrophenol	534-52-1	µg/L	Grab
51	4-Nitrophenol	100-02-7	µg/L	Grab
69	4-Bromophenyl Phenyl Ether	101-55-3	µg/L	Grab
72	4-Chlorophenyl Phenyl Ether	7005-72-3	µg/L	Grab
56	Acenaphthene	83-32-9	µg/L	Grab
57	Acenaphthylene	208-96-8	µg/L	Grab
58	Anthracene	120-12-7	µg/L	Grab
59	Benzidine	92-87-5	µg/L	Grab
61	Benzo(a)Pyrene	50-32-8	µg/L	Grab
63	Benzo(ghi)Perylene	191-24-2	µg/L	Grab
64	Benzo(k)Fluoranthene	207-08-9	µg/L	Grab
65	Bis (2-Chloroethoxy) Methane	111-91-1	µg/L	Grab
66	Bis (2-Chloroethyl) Ether	111-44-4	µg/L	Grab
67	Bis (2-Chloroisopropyl) Ether	108-60-1	µg/L	Grab
68	Bis(2-Ethylhexyl) Phthalate	117-81-7	µg/L	Grab
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab
73	Chrysene	218-01-9	µg/L	Grab
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab
79	Diethyl Phthalate	84-66-2	µg/L	Grab
80	Dimethyl Phthalate	131-11-3	µg/L	Grab
86	Fluoranthene	206-44-0	µg/L	Grab
87	Fluorene	86-73-7	µg/L	Grab
88	Hexachlorobenzene	118-74-1	µg/L	Grab
90	Hexachlorocyclopentadiene	77-47-4	µg/L	Grab
91	Hexachloroethane	67-72-1	µg/L	Grab
92	Indeno(1,2,3-cd) Pyrene	193-39-5	µg/L	Grab
93	Isophorone	78-59-1	µg/L	Grab
98	N-Nitrosodiphenylamine	86-30-6	µg/L	Grab
96	N-Nitrosodimethylamine	62-75-9	µg/L	Grab
97	N-Nitrosodi-n-Propylamine	621-64-7	µg/L	Grab
95	Nitrobenzene	98-95-3	µg/L	Grab
53	Pentachlorophenol (PCP)	87-86-5	µg/L	Grab
99	Phenanthrene	85-01-8	µg/L	Grab
54	Phenol	108-95-2	µg/L	Grab
100	Pyrene	129-00-0	µg/L	Grab

INORGANICS

CTR Number	Inorganic Parameters	CAS Number	Units	Effluent Sample Type
NL	Aluminum	7429-90-5	µg/L	Grab

CTR Number	Inorganic Parameters	CAS Number	Units	Effluent Sample Type
1	Antimony, Total	7440-36-0	µg/L	Grab
2	Arsenic, Total	7440-38-2	µg/L	Grab
15	Asbestos	1332-21-4	µg/L	Grab
3	Beryllium, Total	7440-41-7	µg/L	Grab
4	Cadmium, Total	7440-43-9	µg/L	Grab
5a (III)	Chromium, Total	7440-47-3	µg/L	Grab
6	Copper, Total	7440-50-8	µg/L	Grab
14	Iron, Total	7439-89-6	µg/L	Grab
7	Lead, Total	7439-92-1	µg/L	Grab
8	Mercury, Total	7439-97-6	µg/L	Grab
NL	Mercury, Methyl	22967-92-6	µg/L	Grab
NL	Manganese, Total	7439-96-5	µg/L	Grab
9	Nickel, Total	7440-02-0	µg/L	Grab
10	Selenium, Total	7782-49-2	µg/L	Grab
11	Silver, Total	7440-22-4	µg/L	Grab
12	Thallium, Total	7440-28-0	µg/L	Grab
13	Zinc, Total	7440-66-6	µg/L	Grab

NON-METALS/MINERALS

CTR Number	Non-Metal/Mineral Parameters	CAS Number	Units	Effluent Sample Type
NL	Boron	7440-42-8	µg/L	Grab
NL	Chloride	16887-00-6	mg/L	Grab
14	Cyanide, Total (as CN)	57-12-5	µg/L	Grab
NL	Phosphorus, Total (as P)	7723-14-0	mg/L	Grab
NL	Sulfate	14808-79-8	mg/L	Grab
NL	Sulfide (as S)	5651-88-7	mg/L	Grab

PESTICIDES/PCBs/DIOXINS

CTR Number	Pesticide/PCB/Dioxin Parameters	CAS Number	Units	Effluent Sample Type
110	4,4-DDD	72-54-8	µg/L	Grab
109	4,4-DDE	72-55-9	µg/L	Grab
108	4,4-DDT	50-29-3	µg/L	Grab
112	alpha-Endosulfan	959-98-8	µg/L	Grab
103	alpha-BHC (Benzene hexachloride)	319-84-6	µg/L	Grab
102	Aldrin	309-00-2	µg/L	Grab
113	beta-Endosulfan	33213-65-9	µg/L	Grab
104	beta-BHC (Benzene hexachloride)	319-85-7	µg/L	Grab
107	Chlordane	57-74-9	µg/L	Grab
106	delta-BHC (Benzene hexachloride)	319-86-8	µg/L	Grab
111	Dieldrin	60-57-1	µg/L	Grab

CTR Number	Pesticide/PCB/Dioxin Parameters	CAS Number	Units	Effluent Sample Type
114	Endosulfan Sulfate	1031-07-8	µg/L	Grab
115	Endrin	72-20-8	µg/L	Grab
116	Endrin Aldehyde	7421-93-4	µg/L	Grab
117	Heptachlor	76-44-8	µg/L	Grab
118	Heptachlor Epoxide	1024-57-3	µg/L	Grab
105	gamma-BHC (Benzene hexachloride or Lindane)	58-89-9	µg/L	Grab
119	Polychlorinated Biphenyl (PCB) 1016	12674-11-2	µg/L	Grab
120	PCB 1221	11104-28-2	µg/L	Grab
121	PCB 1232	11141-16-5	µg/L	Grab
122	PCB 1242	53469-21-9	µg/L	Grab
123	PCB 1248	12672-29-6	µg/L	Grab
124	PCB 1254	11097-69-1	µg/L	Grab
125	PCB 1260	11096-82-5	µg/L	Grab
126	Toxaphene	8001-35-2	µg/L	Grab
16	2,3,7,8-TCDD (Dioxin)	1746-01-6	mg/L	Grab

CONVENTIONAL PARAMETERS

CTR Number	Conventional Parameters	CAS Number	Units	Effluent Sample Type
NL	pH	--	SU	Grab
NL	Temperature	--	°C	Grab

NON-CONVENTIONAL PARAMETERS

CTR Number	Nonconventional Parameters	CAS Number	Units	Effluent Sample Type
NL	Hardness (as CaCO ₃)	471-34-1	mg/L	Grab
NL	Specific Conductance (Electrical Conductivity or EC)	EC	µmhos/cm	Grab
NL	Total Dissolved Solids (TDS)	TDS	mg/L	Grab
NL	Dissolved Organic Carbon (DOC)	DOC	mg/L	Grab

NUTRIENTS

CTR Number	Nutrient Parameters	CAS Number	Units	Effluent Sample Type
7	Ammonia (as N)	7664-41-7	mg/L	Grab
8	Nitrate (as N)	14797-55-8	mg/L	Grab
9	Nitrite (as N)	14797-65-0	mg/L	Grab

OTHER CONSTITUENTS OF CONCERN

CTR Number	Other Constituents of Concern	CAS Number	Units	Effluent Sample Type
NL	Barium	7440-39-3	µg/L	Grab
NL	Fluoride	16984-48-8	mg/L	Grab
NL	Molybdenum	7439-98-7	µg/L	Grab

4. Table E-5 Testing Requirements. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-5:
 - a. **Applicable to All Parameters.** Parameters shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
 - b. **Grab Samples.** A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.
 - c. **Redundant Sampling.** The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-5, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.
 - d. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
 - e. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-5.
 - f. **Bis (2-ethylhexyl) phthalate.** In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for

noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit quarterly SMR's including the results of all required monitoring using U.S.EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Quarterly SMR's are required even if there is no discharge. If no discharge occurs during the quarter, the monitoring report must be submitted stating that there has been no discharge.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current laboratory's Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower

of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. **The Discharger shall submit SMR's** in accordance with the following requirements:
 - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. The Discharger shall attach all final laboratory reports from all contracted commercial laboratories, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed.
7. The Discharger shall submit in the SMR's calculations and reports in accordance with the following requirements:
 - a. **Calendar Annual Average Limitations.** For constituents with effluent limitations specified as "calendar annual average" (electrical conductivity) the Discharger shall report the calendar annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.
 - b. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall report monthly in the self-monitoring report the dissolved oxygen concentrations in the effluent (EFF-001) and the receiving water (RSW-001 and RSW-002).
 - c. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in section V.A.17.a-e. of the Waste Discharge Requirements.
 - d. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based

on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMR's)

1. DMR's are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMR's together with SMR's using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal will be in addition to electronic SMR submittal. [Information about electronic DMR submittal](http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring/) (http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring/) is available on the Internet.

D. Other Reports

1. **Special Provision Reports.** The Discharger shall submit the results of any TRE/TIE required by Special Provisions – VI.C.2.a. The Discharger shall submit reports with the first SMR scheduled to be submitted on or immediately following the report due date, in compliance with SMR reporting requirements described in subsection X.B above.
2. **Analytical Methods Report.** The Discharger shall complete and submit an Analytical Methods Report, electronically via CIWQS submittal, by the due date shown in the Technical Reports Table. The Analytical Methods Report shall include the following for each constituent to be monitored in accordance with this Order: 1) applicable water quality objective, 2) reporting level (RL), 3) method detection limit (MDL), and 4) analytical method. The analytical methods shall be sufficiently sensitive with RL's consistent with the SSM Rule per 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv), and with the Minimum Levels (ML's) in the SIP, Appendix 4. The "Reporting Level or RL" is synonymous with the "Method Minimum Level" described in the SSM Rule as outlined above in Attachment E, Section I.F. If an RL is not less than or equal to the applicable water quality objective for a constituent, the Discharger shall explain how the proposed analytical method complies with the SSM Rule. Central Valley Water Board staff will provide a tool with the permit's Notice of Adoption to assist the Discharger in completing this requirement. The tool will include the constituents and associated applicable water quality objectives to be included in the Analytical Methods Report.
3. **Dilution/Mixing Zone Study.** If the Discharger would like to seek dilution credits towards calculation of water quality effluent limitations, the Discharger must complete a Dilution/Mixing Zone Study in Kanaka Creek, in accordance with Section 1.4.2 of the SIP, Chapter 4 of the US EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001), and section IV.C.2.c of the Fact Sheet, Attachment F, of this Order. Submittal, of a Workplan and Time Schedule, is necessary for completion of the Dilution/Mixing Zone Study. The timing of the submittals is at the discretion of the Discharger.

4. **Annual Best Management Practices Report.** An annual status report regarding the best management practices shall be sent to the Central Valley Water Board by the due dates shown in the Technical Reports Table. The annual status report shall include a summary of all actions undertaken pursuant to best management practices and a description of actions to be taken in the following year.

5. **Report of Waste Discharge (ROWD).** For the 5-year permit renewal, the Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing, at minimum, the following by the due date in the Technical Reports Table E-7:
 - a. Report of Waste Discharge (Form 200);
 - b. NPDES Form 1;
 - c. NPDES Form 2E; and
 - d. **Salinity Evaluation and Minimization Plan.** The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge.

6. **Technical Report Submittals.** This Order includes requirements to submit a Report of Waste Discharge (ROWD), special study technical reports, progress reports, and other reports identified in the MRP (hereafter referred to collectively as “technical reports”). The Technical Reports Table and subsequent table notes below summarize all technical reports required by this Order and the due dates for submittal. All technical reports shall be submitted electronically via CIWQS submittal. Technical reports should be uploaded as a PDF, Microsoft Word, or Microsoft Excel file attachment.

Table E-7. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
1	Report of Waste Discharge	31 July 2025	MRP X.D.5
2	Analytical Methods Report	1 September 2021	MRP X.D.2
3	Analytical Methods Report Certification	1 February 2022	MRP IX.D.5
4	Annual Best Management Practices Report	1 February 2022	MRP X.D.4
5	Annual Best Management Practices Report	1 February 2023	MRP X.D.4
6	Annual Best Management Practices Report	1 February 2024	MRP X.D.4

Report #	Technical Report	Due Date	CIWQS Report Name
7	Annual Best Management Practices Report	1 February 2025	MRP X.D.4
8	Annual Best Management Practices Report	1 February 2026	MRP X.D.4

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ATTACHMENT F – FACT SHEET

As described in section II.C of this Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet discusses the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

Waste Discharge ID:	5A462023001
CIWQS Facility Place ID:	257308
Discharger:	Original Sixteen to One Mine, Inc.
Name of Facility:	Sixteen to One Mine
Facility Address:	506 Miners Street
Facility City, State Zip:	Alleghany, California, 95910
Facility County:	Sierra County
Facility Contact, Title and Phone Number:	Michael M. Miller, President (530) 287-3223
Authorized Person to Sign and Submit Reports:	Same as Facility Contact
Mailing Address:	P.O. Box 909 Alleghany, California 95910
Billing Address:	Same as Mailing Address
Type of Facility:	Gold Mine, Standard Industrial Classification (SIC) Code 1041
Major or Minor Facility:	Minor
Threat to Water Quality:	2
Complexity:	C
Pretreatment Program:	Not Applicable
Recycling Requirements:	Not Applicable
Facility Permitted Flow:	0.28 MGD
Facility Design Flow:	Not Applicable
Watershed:	Camptonville Hydrologic Subarea 517.42, Middle Yuba Hydrologic Area, Yuba River Hydrologic Unit, of the Sacramento Hydrologic Basin

Receiving Water:	Kanaka Creek
Receiving Water Type:	Inland surface water

- A.** The Original Sixteen to One Mine, Inc. (hereinafter Discharger) is the owner and operator of Sixteen to One Mine (hereinafter Facility), an underground hard rock gold mine.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to Kanaka Creek, a water of the United States, tributary to the Middle Fork Yuba River within the Yuba River Watershed. The Discharger was previously regulated by Order R5-2015-0002 and National Pollutant Discharge Elimination System (NPDES) Permit CA0081809 adopted on 5 February 2015 and expired on 31 March 2020. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.
- C.** The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDR’s) and NPDES permit on 13 March 2020. The application was deemed complete on 2 July 2020. A site visit was conducted on 19 June 2018, to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.
- D.** Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Under 40 C.F.R. section 122.6(d), States authorized to administer the NPDES program may administratively continue State-issued permits beyond their expiration dates until the effective date of the new permits, if State law allows it. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Sixteen to One Mine is a hard rock gold mine that covers approximately 412 acres in and around the town of Alleghany, Sierra County, California. Alleghany is approximately 20 miles (32 km) from the nearest highway (California State Route 49) and consists largely of a single main street. The estimated population is 78. The mine started operation in 1896 and is located on the south side of Pliocene Ridge and on the north side of Kanaka Creek ravine. The terrain is steep, with slopes of more than 45 degrees, and covered in heavy vegetation. The mine consists of about 35 miles of underground tunnels.

The gold at Sixteen to One Mine is located in a complex vein system of white quartz deposited in metamorphic rock. Other minerals associated with the gold-bearing quartz include galena, arsenopyrite, and serpentine. The mine operation is a hard rock

underground mine in where miners sink diagonal shafts from which horizontal tunnels are created various elevations. Operations at the site included mining and milling using mercury until milling ceased in 1999.

A. Description of Wastewater

During the 19 June 2018 inspection, Central Valley Water Board staff reported that the mill was dismantled and inoperable. Currently, the Discharger uses metal detectors on loose rock that has been blasted from the working surface of the mine underground, and collects probable gold in a sack to take to the office. Specimen gold is sold as-is, and the rest is milled by hand. The Discharger has stated that there is no intent to restart milling activities at the Facility in the future. This Order contains waste discharge and monitoring requirements based on the dismantled and inoperable milling facility. Therefore, this Order prohibits any milling activities other than the current practice of hand-milling the specimens. However, this Order contains a reopener provision (section VI.C.1. in the Limitations and Discharge Requirements of this Order) that allows the Central Valley Water Board to reopen this Order to include new or modified waste discharge or monitoring requirements should the Discharger restart milling activities.

Groundwater from the mine workings collects naturally and is pumped from the lower levels of the mine by a 25-horsepower pump into the water ditch prior to runoff via the 21 Tunnel Portal. Currently, there is no treatment or control on the mining waste including the mine drainage discharge from the 21 Tunnel Portal to Kanaka Creek at Discharge Point 001. The Discharger reported in the ROWD application, that the average flow at Discharge Point 001 is 0.28 MGD. This Order contains waste discharge requirements based on the Facility's mining activities described in this section. This Order also prohibits discharges to Kanaka Creek from any activities different than described in Attachment F, Sections I and II.

B. Discharge Points and Receiving Waters

1. The Facility is located in section 34, T19N, R10E, Mount Diablo Baseline & Meridian, as shown in Attachment B, a part of this Order.
2. Untreated mine drainage is discharged at Discharge Point 001 to Kanaka Creek, a water of the United States and a tributary to the Middle Fork Yuba River at a point latitude 39° 27' 47" N and longitude 120° 50' 22" W.
3. Camptonville Hydrologic Subarea 517.42, Middle Yuba Hydrologic Area, Yuba River Hydrologic Unit, of the Sacramento Hydrologic Basin.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order R5-2015-0002 for discharges from the Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2015-0002 are as follows:

Table F-2. Historic Effluent Limitations

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	0.28	--	--	--
Electrical Conductivity @ 25°C	µmhos/cm	Annual Average (AA) 900	--	--	AA 1,704
pH	SU	Instantaneous Max 8.5 Instantaneous Min 6.5	--	--	Max 8.64 Min 6.89
Total Suspended Solids	mg/L	AMEL 20 MDEL 30	--	--	7
Antimony, Total	µg/L	AMEL 6.0 MDEL 12	--	--	33.32
Arsenic, Total	µg/L	AMEL 10 MDEL 20	--	--	1,308
Cadmium, Total	µg/L	AMEL 0.85 MDEL 1.7	--	--	ND
Copper, Total	µg/L	AMEL 3.1 MDEL 6.3	--	--	8.12
Iron, Total	µg/L	AA 300	--	--	AA 539
Lead, Total	µg/L	AMEL 0.90 MDEL 1.8	--	--	2.07
Manganese, Total	µg/L	AA 50	--	--	AA 40
Mercury, Total	µg/L	AMEL 1 MDEL 5	--	--	ND
Nickel, Total	µg/L	AMEL 21 MDEL 43	--	--	106.3
Zinc, Total	µg/L	AMEL 750 MDEL 1,500	--	--	ND
Acute Toxicity	% Survival	70%, minimum for any one bioassay; 90%, median for any three consecutive bioassays	--	--	Not Sampled

D. Compliance Summary

1. The Central Valley Water Board issued Administrative and Civil Liability (ACL) Order R5-2016-0021 on 21 April 2016, which assessed a civil liability of \$6,000 against the Discharger for violations of interim effluent limitations contained in

Time Schedule Order (TSO) R5-2015-0035 for antimony that occurred between 16 April 2015 and 30 September 2015.

2. The Central Valley Water Board issued ACL Order R5-2017-0115 on 8 December 2017, which assessed a civil liability of \$33,000 against the Discharger for violations of interim effluent limitations contained in TSO R5-2015-0035 for antimony, arsenic, cadmium, copper, iron and nickel and effluent limitations for TSS contained in Order R5-2015-0002 that occurred between 1 October 2015 and 31 December 2016.
3. The Central Valley Water Board issued ACL Order R5-2019-0042 on 6 June 2019, which assessed a civil liability of \$12,000 against the Discharger for violations of effluent limitations for TSS and pH contained in Order R5-2015-0002 that occurred between 1 January 2017 and 31 December 2018.

E. Planned Changes

The Discharger installed a pilot system for a heavy metal remediation treatment system. The pilot study treatment system is designed to treat up to 50 gallons per minute of effluent in the 21 Tunnel Portal. Samples were taken to assess the effectiveness of the treatment; however, it was determined from the analytical results that the pilot study treatment system was not effective at reducing metals concentrations to levels needed to make it feasible to construct a full-scale system that would be able to treat the effluent to meet objectives or criteria at the point of discharge. Therefore, the Discharger is exploring other options for complying with final effluent limitations of this Order.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plans.** Requirements of this Order specifically implement the applicable Water Quality Control Plans.

a. **Basin Plan.** The Central Valley Water Board adopted a Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018 (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

The Basin Plan at section 2.1 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table 2-1, section 2, does not specifically identify beneficial uses for Kanaka Creek, but does identify present and potential uses for the Yuba River, source to Englebright Reservoir, to which Kanaka Creek via the Middle Fork Yuba River, is tributary. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, beneficial uses applicable to Kanaka Creek are as follows:

Table F-3 Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Kanaka Creek	Existing: Municipal and domestic water supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Cold freshwater habitat (COLD); Wildlife habitat (WILD); Hydropower generation (POW); Contact (REC-1) and non-contact (REC-2) water recreation; Spawning, reproduction, and/or early development, cold (SPWN).

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") (State Anti-Degradation Policy). The State Anti-Degradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Anti-Degradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. The Board finds this order is consistent with the Federal and State Water Board antidegradation regulations and policy.
5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to

2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

8. **Storm Water Requirements.** This permit does not regulate the discharge of storm water. U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from gold mining and milling facilities. Gold mining and milling facilities are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Discharger is responsible for meeting all applicable requirements of the NPDES Industrial Storm Water Program.

D. Impaired Water Bodies on CWA 303(d) List

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 6 April 2018 U.S. EPA gave final approval to California's 2014 - 2016 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The listing for the Kanaka Creek includes arsenic.
2. **Total Maximum Daily Loads (TMDL's).** Table F-4, below, identifies the 303(d) listings and any applicable TMDL's. At the time of this permit renewal, there are no approved TMDL's with waste load allocations that apply to this Facility.

Table F-4. 303 (d) List for Kanaka Creek

Pollutant	Potential Sources	TMDL Status
Arsenic	Unknown	2027

3. The 303(d) listings and TMDL's have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section IV.C.3 of this Fact Sheet.

E. Other Plans, Polices and Regulations

1. **Federal Effluent Limit Guidelines.** 40 C.F.R. part 440 for the Ore Mining and Dressing Point Source Category, Subpart J, Copper, Lead, Zinc, Gold, Silver, and Molybdenum Subcategory prescribes technology-based effluent limits for underground operating gold mines. This Order contains several federal technology-based effluent limits (see section IV.B of this Fact Sheet for detailed information).

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., section 1311(b)(1)(C); 40 C.F.R. section 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that “are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.” Federal regulations, 40 C.F.R. section 122.44(d)(1)(vi), further provide that “[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.”

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL’s to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page 4-27, contains an implementation policy, “Policy for Application of Water Quality Objectives”, that specifies that the Central Valley Water Board “will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.” This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA’s published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy

interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. section 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at section 3.1.20) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents' objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCL's)" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCL's. The narrative tastes and odors objective states: "Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
2. **Prohibition III.B (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance
3. **Prohibition III.C (No discharge of hazardous waste).** This prohibition is based on California Code of Regulations, title 22, section 66261.1 et seq, that prohibits discharge of hazardous waste.
4. **Prohibition III.D (Average Dry Weather Flow).** This prohibition is based on the design average dry weather flow treatment capacity rating for the Facility and ensures the Facility is operated within its treatment capacity. Previous Order R5-2015-0002 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category in 40 C.F.R. part 440 and Best Professional Judgment (BPJ) in accordance with 40 C.F.R. section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- a. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELG's) representing application of BPT and BAT. Section 402(a)(1) of the CWA and 40 C.F.R. section 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELG's are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the Central Valley Water Board must consider specific factors outlined in 40 C.F.R. section 125.3.

2. Applicable Technology-Based Effluent Limitations

- a. The applicable ELG's for active mines, found in 40 C.F.R., part 440 (Ore Mining and Dressing Point Source Category), subpart J (Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory), require that the concentration of pollutants discharged from mining and milling activities and in mine drainage (defined in 40 C.F.R. 440.132(h) as "any water drained, pumped, or siphoned from a mine") from mines not exceed the BPT and BAT limits shown in Table F-5 below:

**Summary of Technology-based Effluent Limitations
 Discharge Point 001**

Table F-5. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations	Applicable Standard
Cadmium, Total	µg/L	AMEL 50 MDEL 100	BAT
Copper, Total	µg/L	AMEL 150 MDEL 300	BPT, BAT
Lead, Total	µg/L	AMEL 300 MDEL 600	BPT, BAT
Mercury, Total	µg/L	AMEL 1.0 MDEL 2.0	BPT, BAT
pH	SU	Within 6.0 to 9.0	BPT
Total Suspended Solids	mg/L	AMEL 20 MDEL 30	BPT
Zinc, Total	µg/L	AMEL 750 MDEL 1500	BPT, BAT

C. Water Quality-Based Effluent Limitations (WQBEL's)

1. Scope and Authority

CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBEL's must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBEL's when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality

objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

Finally, 40 C.F.R. section 122(d)(1)(vii) requires effluent limits to be developed consistent with any available waste load allocations developed and approved for the discharge.

2. **Applicable Beneficial Uses and Water Quality Criteria and Objectives**

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page 2-1 states: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning..." and with respect to disposal of wastewaters states that "...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses."

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 C.F.R. sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

- a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.
- b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from April 2017 through May 2020, which includes effluent and ambient background data submitted in SMR's and two sampling events conducted by the Central Valley Water Board on 29 August 2018 and 10 October 2019, which measured total and dissolved concentrations

of constituents of concern. Additional data outside of this range was also analyzed where there was inadequate data to perform an analysis. The Discharger performed effluent and receiving water characterization monitoring required in Order R5-2015-0002 on 19 May 2020, which was also included in the RPA.

c. **Assimilative Capacity/Dilution/Mixing Zone.**

Mixing zones/dilution credits have not been allowed in this Order. If the Discharger performs a Dilution/Mixing Zone Study that supports the allowance of a mixing zone(s), the Central Valley Water Board may reopen this Order to include effluent limitations based on the allowance of dilution credit(s). The following sections describe the regulatory requirements related to mixing zones.

The CWA directs the states to adopt water quality standards to protect the quality of its waters. U.S. EPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR parts 122.44 and 122.45). The U.S. EPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) (TSD).

For non-Priority Pollutant constituents the allowance of mixing zones by the Central Valley Water Board is discussed in the Basin Plan, *Policy for Application of Water Quality Objectives*, which states in part, "In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the EPA's *Water Quality Standards Handbook* and the [TSD]. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge."

For Priority Pollutants, the SIP supersedes the Basin Plan mixing zone provisions. Section 1.4.2 of the SIP states, in part, "...with the exception of

effluent limitations derived from TMDL's, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers...The applicable priority pollutant criteria and objectives are to be met through a water body except within any mixing zone granted by the Regional Board. ***The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis.*** The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board." [emphasis added]

For incompletely mixed discharges, the Discharger must complete an independent mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. In granting a mixing zone, section 1.4.2.2 of the SIP requires the following to be met:

"A mixing zone shall be as small as practicable. The following conditions must be met in allowing a mixing zone:

A mixing zone shall not:

1. *compromise the integrity of the entire water body;*
2. *cause acutely toxic conditions to aquatic life passing through the mixing zone;*
3. *restrict the passage of aquatic life;*
4. *adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*
5. *produce undesirable or nuisance aquatic life;*
6. *result in floating debris, oil, or scum;*
7. *produce objectionable color, odor, taste, or turbidity;*
8. *cause objectionable bottom deposits;*
9. *cause nuisance;*
10. *dominate the receiving water body or overlap a mixing zone from different outfalls; or*
11. *be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."*

Section 1.4.2.1 of the SIP establishes the authority for the Central Valley Water Board to consider dilution credits based on the mixing zone conditions in a receiving water. Section 1.4.2.1 in part states:

*“The dilution credit, D, is a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. The dilution credit is a value used in the calculation of effluent limitations (described in section 1.4). **Dilution credits may be limited or denied on a pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in the discharge.**”*

- d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default U.S. EPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total criteria.
- e. **Hardness-Dependent CTR Metals Criteria.** The CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP and the CTR. (The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water, and the CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. section 131.38(c)(4)).) The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones (40 C.F.R. section 131.3(c)(4)(ii)). Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10) (40 C.F.R. section 131.38(c)(2)(iii) Table 4). This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a three year period on average (40 C.F.R. section 131.38(c)(2)(iii) Table 4, notes 1 and 2). The CTR requires that when

mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge (40 C.F.R. section 131.38(c)(2)(i)). The CTR does not define the term “ambient,” as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

Summary findings

The ambient hardness for Kanaka Creek is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 18.2 mg/L to 155 mg/L based on collected ambient data from April 2017 through March 2020. Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 18.2 mg/L (minimum) up to 155 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-7 for the following reasons.

- i. Using the ambient receiving water hardness values shown in Table F-7 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-7 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.
- iii. Using an ambient hardness that is higher than the minimum of 18.2 mg/L will result in limits that may allow increased metals to be discharged to the river, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent

with the antidegradation policy (see antidegradation findings in section IV.D.4 of the Fact Sheet). The Antidegradation policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

- iv. Using the ambient hardness values shown in Table F-6 is consistent with the CTR and SIP’s requirements for developing metals criteria.

Table F-6. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total) (Acute)	CTR Criteria (µg/L, total) (Chronic)
Copper	104	15	9.6
Chromium III	104	1,800	210
Cadmium	90 (acute) 104 (chronic)	4.0	2.5
Lead	79	61	2.4
Nickel	104	490	54
Silver	65	1.9	--
Zinc	104	120	120

Table F-6 Notes:

1. **CTR Criteria (ug/L total).** Acute and chronic numbers were rounded to two significant figures in accordance with the CTR (40 C.F.R. section 131.38(b)(2)).
2. **Ambient hardness (mg/L).** Values in Table F-6 represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1.
3. **The CTR’s hardness dependent metals criteria** equations vary differently depending on the metal, which results in differences in the range of ambient hardness values that may be used to develop effluent limitations that are protective of beneficial uses and comply with CTR criteria for all ambient flow conditions.

Background

The State Water Board provided direction regarding the selection of hardness in two precedential water quality orders; WQO 2008-0008 for the City of Davis Wastewater Treatment Plant (Davis Order) and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant (Yuba City Order). The State Water Board recognized that the SIP and the CTR do not discuss the manner in which hardness is to be ascertained, thus regional water boards have considerable discretion in determining ambient hardness so long as the selected value is protective of water quality criteria under the given flow conditions. (Davis Order, p.10). The State Water Board explained that it is necessary that, “The [hardness] value selected should provide protection for all times of discharge under varying hardness conditions.” (Yuba City Order, p. 8). The Davis Order also

provides that, “Regardless of the hardness used, the resulting limits must always be protective of water quality criteria under all flow conditions.” (Davis Order, p. 11)

For this discussion, all hardness values are expressed in mg/L as CaCO₃. The equation describing the total regulatory criterion, as established in the CTR, is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \text{ (Equation 1)}$$

Where:

H = ambient hardness (mg/L as CaCO₃)

WER = water-effect ratio

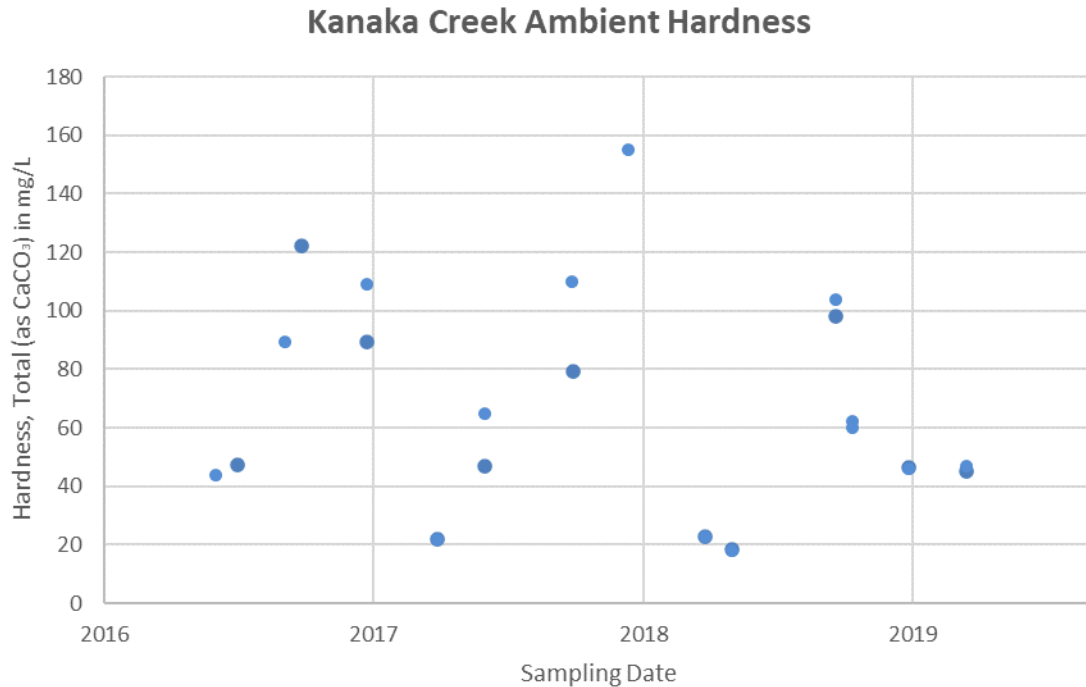
m, b = metal- and criterion-specific constants

The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected “design” hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a three year period (40 C.F.R. section 131.38(c)(2)(iii) Table 4, notes 1 and 2). Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10).

Ambient conditions

The ambient receiving water hardness varied from 18.2 mg/L to 155 mg/L, based on 25 samples from April 2017 through March 2020 (see Figure F-1).

Figure F-1. Observed Ambient Hardness Concentrations 18.2 mg/L to 155 mg/L



In this analysis, the entire range of ambient hardness concentrations shown in Figure F-1 were considered to determine the appropriate ambient hardness to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

Approach to derivation of criteria

As shown above, ambient hardness varies substantially. Because of the variation, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum, mid-point). While the hardness selected must be hardness of the ambient receiving water, selection of an ambient receiving water hardness that is too high would result in effluent limitations that do not protect beneficial uses. Also, the use of minimum ambient hardness would result in criteria that are protective of beneficial uses, but such criteria may not be representative considering the wide range of ambient conditions.

Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and flow conditions. To do this, the Central Valley Water Board has ensured that the receiving water hardness and criteria selected for effluent limitations are protective under “reasonable-worst case ambient conditions.” These conditions represent the receiving water conditions

under which derived effluent limitations would ensure protection of beneficial uses under all ambient flow and hardness conditions.

Reasonable worst-case ambient conditions:

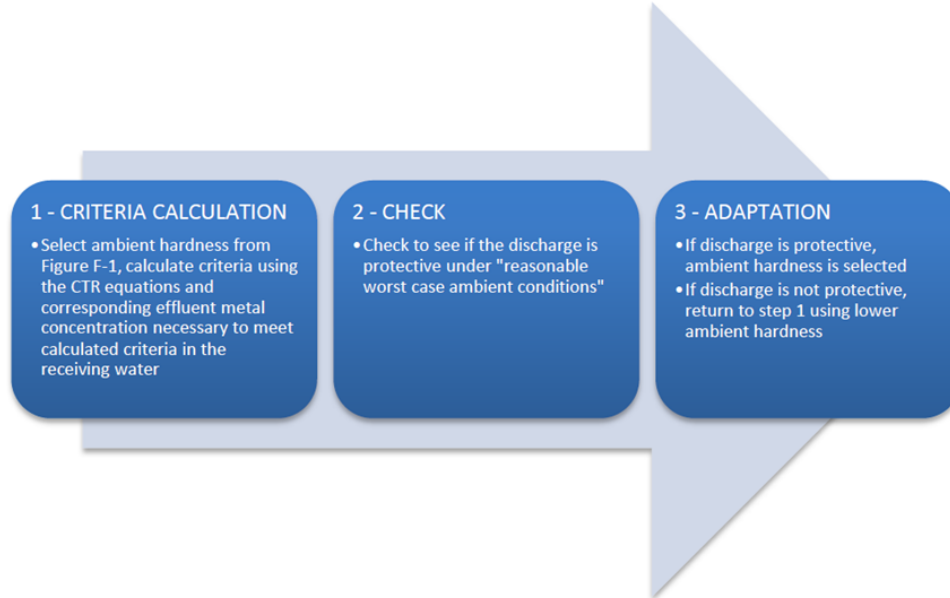
- “Low receiving water flow.” CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions.
- “High receiving water flow (maximum receiving water flow).” This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- “Low receiving water hardness.” The minimum receiving water hardness condition of 34 mg/L was selected to represent the reasonable worst-case receiving water hardness.
- “Background ambient metal concentration at criteria.” This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the facility’s discharge). Based on data in the record, this is a design condition that does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

Iterative approach.

An iterative analysis has been used to select the ambient hardness to calculate the criteria that will result in effluent limitations that protect beneficial uses under all flow conditions.

The iterative approach is summarized in the following algorithm and described below in more detail.

Figure F-2. Criteria Calculation CTR



1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 155 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with SIP section 1.4.B, Step 2 of the SIP, which provides direction for calculating the Effluent Concentration Allowance. This should not be confused with an effluent limit. Rather, it is the ECA, which is synonymous with the wasteload allocation defined by U.S. EPA on page 96 of the TSD as “a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water”. If effluent limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.
2. **CHECK.** U.S. EPA’s simple mass balance equation, as found in the “U.S. EPA NPDES Permit Writers’ Handbook” (EPA 833-K-10-001 September 2010, pg. 6-24), is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. **ADAPT.** If step 2 results in:
 - (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.

- (B) receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

The CTR’s hardness dependent metals criteria equations contain metal-specific constants, so the criteria vary depending on the metal. Therefore, steps 1 through 3 above must be repeated separately for each metal until ambient hardness values are determined that will result in criteria and effluent limitations that comply with the CTR and protect beneficial uses for all metals.

Results of iterative analysis

The iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values are shown in Table F-6, above. Using these actual receiving water sample hardness values to calculate criteria will result in effluent limitations that are protective under all ambient flow conditions. Ambient hardness values are used in the CTR equations to derive criteria and effluent limitations. As an example of the three-step iterative process, Table F-7 below summarizes the numeric results for copper based on an ambient hardness of 104 mg/L and a calculated ECA of 9.6 µg/L. Table F-8 below summarizes the numeric results for silver based on an ambient hardness of 65 mg/L and a calculated ECA of 1.9 µg/L. The analysis evaluated all flow conditions, and the numeric values for the critical flow conditions are summarized in Tables F-7 and F-8, below. Ambient concentrations for copper and silver are calculated using the worst-case downstream ambient conditions, which allows for a conservative assumption that will ensure the receiving water complies with CTR criteria. Under the “check” step, worst-case ambient receiving water conditions are used to test whether the effluent discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the iterative analyses show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-9 and F-10 below, summarize the critical flow conditions. WQBEL’s for copper and silver are not included in this Order as they demonstrate no reasonable potential. In lieu of WQBEL’s for copper, TBEL’s are applicable as described in section IV.C.3.a of the Fact Sheet.

Table F-7. Verification of CTR Compliance for Copper
 Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Copper Concentration (µg/L)	Complies with CTR?
1Q10	106	9.8	9.6	Yes
7Q10	106	9.8	9.6	Yes

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Copper Concentration (µg/L)	Complies with CTR?
Max receiving water flow	34.9	3.8	3.6	Yes

Table F-8. Verification of CTR Compliance for Silver
 Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness	CTR Criteria (µg/L)	Ambient Silver Concentration (µg/L)	Complies with CTR?
1Q10	106	4.5	1.9	Yes
7Q10	106	4.5	1.9	Yes
Max receiving water flow	34.9	0.7	0.5	Yes

3. Determining the Need for WQBEL’s

Clean Water Act section 301(b)(1)(C) requires effluent limitations necessary to meet water quality standards, and 40 C.F.R. section 122.44(d) requires NPDES permits to include conditions that are necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality. Federal regulations at 40 C.F.R 122.44(d)(1)(i) state, “Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” Additionally, 40 C.F.R. section 122(d)(1)(vii) requires effluent limits to be developed consistent with any available wasteload allocations developed and approved for the discharge. The process to determine whether a WQBEL is required as described in 40 C.F.R. section 122.44(d)(1)(i) is referred to as a reasonable potential analysis or RPA. Central Valley Water Board staff conducted RPA’s for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. This section includes details of the RPA’s for constituents of concern for the Facility. The entire RPA is included in the administrative record and a summary of the constituents of concern is provided in Attachment G. For priority pollutants, the SIP dictates the procedures for conducting the RPA. For non-priority pollutants the Central Valley Water Board is not restricted to one particular RPA method, therefore, the RPA’s have been conducted based on EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

- a. **Constituents with No Reasonable Potential.** Central Valley Water Board staff conducted reasonable potential analyses for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. All reasonable potential analyses are included in the administrative record

and a summary of the constituents of concern is provided in Attachment G. WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an instream excursion of an applicable water quality objective; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. This section only provides the rationale for the reasonable potential analyses for the following constituents of concern that were found to have no reasonable potential after assessment of the data:

i. **Cadmium**

- (a) **WQO.** 40 C.F.R. part 440, subpart J contains ELG's for active gold mines; these federal guidelines recommend BAT technology-based effluent limits for cadmium of 50 µg/L as a monthly average and 100 µg/L as a daily maximum.

The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for cadmium. Waste Discharge Requirements Order R5-2015-0002 included effluent limitations for cadmium based on the CTR acute criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 4.0 µg/L and 2.5 µg/L, respectively, as total.

- (b) **RPA Results.** Section IV.C.2 of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as cadmium. The CTR includes hardness-dependent criteria for cadmium for the receiving water. The RPA was conducted using an upstream receiving water hardness of 18.2 mg/L to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the maximum effluent concentration. The table below shows the specific criteria used for the RPA:

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Yes/No)
Receiving Water	0.6 µg/L	ND (<0.5 µg/L)	No

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Yes/No)
Effluent	2.5 µg/L	ND (<0.5 µg/L)	No

Table Notes:

1. **Receiving Water.** The CTR Chronic Criterion (Total) for the receiving water is based on lowest observed upstream hardness of 18.2 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
2. **Effluent.** The CTR Chronic Criterion (Total) for the effluent is based on reasonable worst-case downstream hardness of 104 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Cadmium was not detected in the effluent based on 15 samples or in the upstream receiving water based one sample collected between April 2017 and May 2020. The laboratory reporting level is 0.5 µg/L. Therefore, cadmium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 2.5 µg/L, and the WQBEL’s for cadmium have not been retained in this Order.

This Order contains technology based effluent limitations for cadmium based on the ELG’s. These limits are less stringent than the water quality based effluent limitations included in the previous Order R5-2015-0002. Relaxation of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ii. **Copper**

- (a) **WQO.** 40 C.F.R. part 440, subpart J contains ELG’s for active gold mines; these federal guidelines recommend BAT and BPT technology-based effluent limits for copper of 150 µg/L as a monthly average and 300 µg/L as a daily maximum.

The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Waste Discharge Requirements Order R5-2015-0002 included effluent limitations for copper based on the CTR acute criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 15 µg/L and 9.6 µg/L, respectively, as total.

- (b) **RPA Results.** Section IV.C.2 of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as copper. The CTR includes hardness-dependent criteria for copper for the receiving water. The RPA was conducted using an upstream receiving water hardness of 18.2 mg/L to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the maximum effluent concentration. The table below shows the specific criteria used for the RPA:

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Yes/No)
Receiving Water	2.2 µg/L	1.6 µg/L	No
Effluent	9.6 µg/L	8.12 µg/L	No

Table Notes:

1. **Receiving Water.** The CTR Chronic Criterion (Total) for the receiving water is based on lowest observed upstream hardness of 18.2 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
2. **Effluent.** The CTR Chronic Criterion (Total) for the effluent is based on reasonable worst-case downstream hardness of 104 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

The MEC for copper was 8.12 µg/L based on 15 samples collected between April 2017 and May 2020, and the maximum upstream receiving water concentration was 1.6 µg/L based on four samples. Therefore, copper in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 9.6 µg/L, and the WQBEL's for copper have not been retained in this Order.

This Order contains technology based effluent limitations for copper based on the ELG's. These limits are less stringent than the water quality based effluent limitations included in the previous Order R5-2015-0002. Relaxation of these effluent

limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Lead**

- (a) **WQO.** 40 C.F.R. part 440, subpart J contains ELG’s for active gold mines; these federal guidelines recommend BAT and BPT technology-based effluent limits for lead of 300 µg/L as a monthly average and 600 µg/L as a daily maximum.

The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. Waste Discharge Requirements Order R5-2015-0002 included effluent limitations for lead based on the CTR acute criterion for the protection of aquatic life. Using the default conversion factors and reasonable worst-case measured hardness as described in section IV.C.2.e, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 61 µg/L and 2.4 µg/L, respectively, as total.

- (b) **RPA Results.** Section IV.C.2 of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as lead. The CTR includes hardness-dependent criteria for lead for the receiving water.

The RPA was conducted using an upstream receiving water hardness of 18.2 mg/L to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the maximum effluent concentration. The table below shows the specific criteria used for the RPA:

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Yes/No)
Receiving Water	0.36 µg/L	ND (<0.5)	No
Effluent	2.4 µg/L	2.07 µg/L	No

Table Notes:

1. **Receiving Water.** The CTR Chronic Criterion (Total) for the receiving water is based on lowest observed upstream hardness of 18.2 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
2. **Effluent.** The CTR Chronic Criterion (Total) for the effluent is based on reasonable worst-case downstream hardness

of 79.4 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Lead was non-detect in the upstream receiving water at a reporting method detection limit of 0.5 µg/L based on 4 samples collected between April 2017 and May 2020. A maximum total effluent lead concentration of 2.4 µg/L was measured on 28 August 2018. The U.S. EPA's Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, 1 October 1993, states, "If total recoverable metal is used for the purpose of water quality standards, compounding of factors due to the lower bioavailability of particulate metal and lower bioavailability of metals as they are discharged may result in a conservative water quality standard. The use of dissolved quality standards gives a more accurate result." Dissolved data is available for the date the maximum effluent concentration for lead was observed on 28 August 2018 and is non-detect at a reporting limit of 0.25 µg/L. The calculated dissolved chronic criteria is 1.9 µg/L; therefore, using the effluent did not exhibit reasonable potential to exceed water quality objectives. The next highest maximum effluent concentration is 2.07 µg/L. Therefore, lead in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 2.4 µg/L, and the WQBEL's for lead have not been retained in this Order.

This Order contains technology based effluent limitations for lead based on the ELG's. These limits are less stringent than the water quality based effluent limitations included in the previous Order R5-2015-0002. Relaxation of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Manganese.**

- (a) **WQO.** The Secondary Maximum Contaminant Level (MCL) – Consumer Acceptance Limit for manganese is 50 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.
- (b) **RPA Results.** Based on 15 samples collected between April 2017 and May 2020, the maximum observed annual average effluent manganese concentration was 40 µg/L. The maximum annual average upstream receiving water concentration is 3.0 µg/L. Therefore, manganese in the discharge does not demonstrate reasonable potential to cause or contribute to an

in-stream above the Secondary MCL, and the effluent limitation for manganese has not been retained in this Order. Removal of the annual average effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

v. **Salinity**

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. Table F-9, below, contains various recommended levels for EC or TDS, sulfate, and chloride.

Table F-9. Salinity Water Quality Criteria/Objectives

Parameters	Secondary MCL Recommended Level.	Secondary MCL Upper Level	Secondary MCL Short-term Maximum	U.S. EPA NAWQC	Maximum Calendar Annual Average Effluent Concentration	Maximum Daily Effluent Concentration
EC (µmhos/cm) or TDS (mg/L)	EC 900 or TDS 500	EC 1,600 or TDS 1,000	EC 2,200 or TDS 1,500	N/A	EC 1,704 or TDS 940	EC 2,760 or TDS 940
Sulfate (mg/L)	250	500	600	N/A	309	309
Chloride (mg/L)	250	500	600	860 1-hour / 230 4-day	155	155

Table F-9 Notes:

1. **Agricultural Water Quality Objectives.** Applicable agricultural water quality objectives vary. Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality Objectives, section 4.2.2.1.9 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.
2. **Secondary MCL's.** Secondary MCL's are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
3. **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
4. **Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.
5. **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(b) RPA Results.

- (1) **Chloride.** From samples collected in May 2020, chloride concentrations in the effluent and upstream receiving water were 155 mg/L and 0.94 mg/L, respectively. These levels do not exceed the Secondary MCL upper level or the U.S. EPA NAWQC for the protection of freshwater aquatic life.
- (2) **Electrical Conductivity or Total Dissolved Solids.** Based on 13 samples, the effluent EC ranged from 436 µmhos/cm to 2,760 µmhos/cm with an average of 1,200 µmhos/cm. The maximum calendar annual average is 1,704 µmhos/cm. Although the maximum calendar annual average exceeds the Secondary MCL upper level, the background receiving water EC averaged 234 µmhos/cm while the maximum annual average downstream concentration measured at RSW-002 is 242 µmhos/cm. The receiving water has been consistently in compliance with the Secondary MCL upper level resulting in available assimilative capacity for consideration in the RPA. Considering the assimilative capacity in the receiving water, the small increase in EC caused by the discharge

does not result in a reasonable potential to cause or contribute to an exceedance of the objectives for EC in the receiving water.

From samples collected in May 2020, TDS concentrations in the effluent and upstream receiving water were 940 mg/L and 52 mg/L, respectively, which do not exceed the Secondary MCL upper level.

- (3) **Sulfate.** From samples collected in May 2020, sulfate concentrations in the effluent and upstream receiving water were 309 mg/L and 3.48 mg/L, respectively. The effluent concentration does not exceed the upper level Secondary MCL.

(c) **WQBEL's.**

As discussed above, the discharge does not have reasonable potential to cause or contribute to an instream excursion of water quality objectives for salinity. However, allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order includes a performance-based effluent limitation of 2,200 $\mu\text{mhos/cm}$ for EC to be applied as a calendar annual average effluent limitation (AAEL) to limit the discharge to current levels. Furthermore, in order to ensure that the Discharger will continue to control the discharge of salinity, this Order requires continued implementation of its Salinity Evaluation and Minimization Plan.

The performance-based AAEL is based on the maximum annual average effluent EC concentration for a calendar year using data from April 2017 through May 2020.

On 17 January 2020, certain amendments to the Basin Plan incorporating a Program to Control and Permit Salt Discharges to Surface and Groundwater (Salt Control Program) became effective. Other amendments became effective on 2 November 2020 when approved by the U.S. EPA. The Salt Control Program is a three-phased program, with each phase lasting 10 to 15 years. The Basin Plan requires all salt dischargers to comply with the provisions of the program. Two compliance pathways are available for salt dischargers during Phase 1.

The Phase 1 Compliance pathways are: 1) Conservative Salinity Permitting Approach, which utilizes the existing regulatory structure and focuses on source control, conservative salinity limits on the discharge, and limits the use of assimilative

capacity and compliance time schedules; and, 2) Alternative Salinity Permitting Approach, which is an alternative approach to compliance through implementation of specific requirements such as participating in the Salinity Prioritization and Optimization Study (P&O) rather than the application of conservative discharge limits.

The performance-based AAEL for EC in this Order is consistent with the Alternative Salinity Permitting Approach and compliance with the effluent limit does not ensure the Facility can participate in the Conservative Salinity Permitting Approach. If the Discharger is authorized to participate in the Conservative Salinity Permitting Approach the conservative salinity limits required by the Salinity Control Program will be applied, which may result in more stringent effluent limits.

- c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for antimony, arsenic, iron, nickel, and pH. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.
- i. **Antimony**
- (a) **WQO.** Waste Discharge Requirements Order R5-2015-0002 established an effluent limitation for antimony based on the Primary MCL of 6 µg/L, which is protective of the Basin Plan's chemical constituent objective. The U.S. EPA National Ambient Water Quality Criteria (NAWQC) includes a criterion of 5.6 µg/L for the protection of human health and welfare protection for waters from which both water and organisms are consumed.
- (b) **RPA Results.** The MEC for antimony was 34.2 µg/L based on 15 samples collected between April 2017 and May 2020. Antimony the maximum upstream receiving water concentration was 5.8 µg/L. The MEC exceeded the criteria; therefore, antimony in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.
- (c) **WQBEL's.** Dilution credits are not allowed for development of the Water Quality Based Effluent Limits for antimony since a mixing zone has not been approved by the Central Valley Water Board. This Order contains a final AMEL and MDEL for antimony of 5.6 µg/L and 11 µg/L, respectively, based on National Recommended Water Quality Criteria.

- (d) **Facility Performance and Attainability.** The Discharger has not constructed a final discharge treatment system or implemented Best Management Practices for treatment of mine discharge. Without treatment or mitigation, the discharge cannot comply with final effluent limitations for antimony. Pursuant to Water Code section 13300, the Discharger may request a Time Schedule Order, which will contain a detailed time schedule of specific actions the Discharger shall take to comply with the final effluent limitations for antimony.

ii. **Arsenic.**

- (a) **WQO.** U.S. EPA has adopted a Primary MCL for total arsenic of 10 µg/L, which is protective of the Basin Plan's chemical constituent objective. In addition, the California Toxics Rule (CTR) includes maximum 1-hour average and 4-day average criteria of 340 µg/L and 150 µg/L, respectively, for dissolved arsenic for the protection of freshwater aquatic life.

The receiving water, Kanaka Creek, has been listed as an impaired water body pursuant to Clean Water Act section 303(d) because of arsenic. A TMDL for arsenic is scheduled for completion in 2027.

- (b) **RPA Results.** The MEC for arsenic was 1,308 µg/L while the maximum observed upstream receiving water concentration was 599 µg/L and the maximum downstream receiving water concentration was 283 µg/L. The MEC exceeded the criteria; therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL and above the CTR criteria.
- (c) **WQBEL's.** Order R5-2015-0002 contained an AMEL and MDEL of 10 µg/L and 20 µg/L based on the Primary MCL and data available at the time of the renewal. WQBEL's were recalculated based on new data collected in between April 2017 and May 2020. Dilution credits are not allowed for development of the WQBEL's for arsenic since a mixing zone has not been approved by the Central Valley Water Board. This Order contains a final AMEL and MDEL for arsenic of 10 µg/L and 22 µg/L, respectively, as total arsenic based on the Basin Plan's narrative chemical constituents objective for protection of the municipal/domestic (MUN) beneficial use.
- (d) **Facility Performance and Attainability.** The Discharger has not constructed a final discharge treatment system or implemented Best Management Practices for treatment of mine

discharge. Without treatment or mitigation, the discharge cannot comply with final effluent limitations for arsenic. Pursuant to Water Code section 13300, the Discharger may request a Time Schedule Order, which will contain a detailed time schedule of specific actions the Discharger shall take to comply with the final effluent limitations for arsenic.

iii. **Iron**

- (a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for iron is 300 µg/L. The State Water Board Division of Drinking Water (DDW) has established Secondary MCL’s to assist public drinking water systems in managing their drinking water for public welfare considerations, such as taste, color, and odor. The Secondary MCL is used to implement the Basin Plan’s chemical constituent objective for the protection of municipal and domestic supply.
- (b) **RPA Results.** The maximum total effluent concentration of 1,800 µg/L was measured on 28 August 2018; the dissolved concentration was analyzed for this sampling event and was DNQ at a concentration of 20 µg/L. The filtration for the dissolved concentration was conducted with a 0.45-micron filter. Although the Basin Plan specifies compliance with the Secondary MCL should be evaluated using a 1.5-micron filter, the MEC was not included when calculating the maximum annual average due to the significant reduction in iron concentration in the filtered sample. The maximum calendar annual average effluent concentration for iron was 377 µg/L occurred during 2017, which exhibited higher than average rainfall and subsequent total iron concentrations. The calculated annual average was the only annual average which exceeded the Secondary MCL.

The maximum observed calendar annual average upstream receiving water concentration was 356 µg/L based on one sample taken in May 2020. The maximum downstream annual average concentration was 149 µg/L based on one sample in 2018; however, due to limited receiving water data, an accurate projected maximum receiving water could not be calculated to determine if the discharge presents no reasonable potential for the receiving water to exceed the Secondary MCL. Therefore, there is reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Secondary MCL.

- (c) **WQBEL’s.** Dilution credits are not allowed for development of the WQBEL’s for iron since a mixing zone has not been

approved by the Central Valley Water Board. This Order contains an AMEL and MDEL for iron of 590 µg/L and 770 µg/L based on the Basin Plan’s narrative chemical constituents objective for the protection of the MUN beneficial use.

- (d) **Facility Performance and Attainability.** Out of 13 samples, the effluent exceeded the MDEL of 590 µg/L twice. This Order allows for filtration with a 1.5-micron filter to determine compliance with the Secondary MCL in accordance with the Basin Plan. Based on the significant reduction of iron in the effluent with filtration, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iv. **Nickel**

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for nickel. These criteria for nickel are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent.
- (b) **RPA Results.** Section IV.C.2 of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as nickel. The CTR includes hardness-dependent criteria for nickel for the receiving water. The maximum observed upstream receiving water nickel concentration was 9.34 µg/L, based on 4 samples collected between April 2017 and May 2020. The RPA was conducted using the upstream receiving water hardness to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the maximum effluent concentration. The table below shows the specific criteria used for the RPA:

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Yes/No)
Receiving Water	12 µg/L	9.4 µg/L	No
Effluent	54 µg/L	130 µg/L	Yes

Table Notes:

1. **Receiving Water.** The CTR Chronic Criterion (Total) for the receiving water is based on lowest observed upstream hardness of 18.2 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
2. **Effluent.** The CTR Chronic Criterion (Total) for the effluent is based on reasonable worst-case downstream hardness of 104 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Based on the available data, nickel in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

- (c) **WQBEL's.** Dilution credits are not allowed for development of the WQBEL's for nickel since a mixing zone has not been approved by the Central Valley Water Board. This Order contains a final AMEL and MDEL for nickel of 45 µg/L and 89 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.
- (d) **Facility Performance and Attainability.** The Discharger has not constructed a final discharge treatment system or implemented Best Management Practices for treatment of mine discharge. Without treatment or mitigation, the discharge cannot comply with final effluent limitations for nickel. Pursuant to Water Code section 13000, the Discharger may request a Time Schedule Order, which will contain a detailed time schedule of specific actions the Discharger shall take to comply with the final effluent limitations for nickel.

v. **pH**

- (a) **WQO.** 40 C.F.R. part 440, subpart J contains ELG's for active gold mines; these federal guidelines recommend BPT technology-based effluent limits for pH within the range of 6.0 to 9.0. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "pH shall not be depressed below 6.5 nor raised above 8.5."
- (b) **RPA Results.** The effluent pH ranged from 6.89 to 8.64 while the upstream receiving water pH ranged from 6.48 to 8.42. The pH in the discharge exceeds the Basin Plan water quality objective, therefore the effluent has a reasonable potential to

cause or contribute to an in-stream excursion above the objective.

- (c) **WQBEL's.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Facility Performance and Attainability.** The Discharger has not constructed a final discharge treatment system or implemented Best Management Practices for treatment of mine discharge. The effluent pH was above the instantaneous maximum effluent limitation only once and did not exceed the instantaneous minimum effluent limitation based on 13 samples. The Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

- a. This Order includes WQBEL's for antimony, arsenic, iron, lead, nickel, and pH. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

$$\text{ECA} = C + D(C - B) \text{ where } C > B, \text{ and}$$
$$\text{ECA} = C \text{ where } C \leq B$$

where:

ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples.

- c. **Primary and Secondary MCL's.** For non-priority pollutants with primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

For non-priority pollutants with secondary MCL’s that protect public welfare (e.g., taste, odor, and staining), WQBEL’s were calculated by setting the LTA equal to the secondary MCL and using the AMEL multiplier to set the AMEL. The MDEL was calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

- d. **Aquatic Toxicity Criteria.** For constituents with acute and chronic aquatic toxicity criteria, the WQBEL’s are calculated in accordance with section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. **Human Health Criteria.** For constituents with human health criteria, the WQBEL’s are calculated in accordance with section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$\begin{aligned}
 AMEL &= mult_{AMEL} \left[\min \left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right] \\
 MDEL &= mult_{MDEL} \left[\min \left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right] \\
 MDEL_{HH} &= \left(\frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}
 \end{aligned}$$

where:

mult_{AMEL} = statistical multiplier converting minimum LTA to AMEL

mult_{MDEL} = statistical multiplier converting minimum LTA to MDEL

M_A = statistical multiplier converting acute ECA to LTA_{acute}

M_C = statistical multiplier converting chronic ECA to $LTA_{chronic}$

**Summary of Water Quality-Based Effluent Limitations
 Discharge Point 001**

Table F-10. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitations	Other
Antimony, Total	µg/L	5.6	11	--
Arsenic, Total	µg/L	10	22	--
Electrical Conductivity	µmhos/cm	--	--	AA 2,200
Iron, Total	µg/L	590	770	--
Nickel, Total	µg/L	45	89	--
pH	SU	--	--	Instantaneous max 8.5 Instantaneous min 6.5

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E section V.). This Order also contains effluent limitations for acute and chronic toxicity and requires the Discharger to implement best management practices to investigate the causes of and identify corrective actions to reduce or eliminate effluent toxicity.

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at section 3.1.20.) The Basin Plan also states that, “...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”.

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Acute whole effluent toxicity is not a priority pollutant. Therefore, due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific

pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

Acute Toxicity. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

70%, minimum for any one bioassay; and

90%, median for any three consecutive bioassays.

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page section 3.1.20.) Adequate chronic WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires three species semi-annual (for at least the first two years of this Order) chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 C.F.R section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 C.F.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL's), mass limitations are not necessary to protect the beneficial uses of the receiving water.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires maximum daily and average monthly discharge limitations for all dischargers other than POTW's unless impracticable.

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for arsenic, cadmium, copper, flow, electrical conductivity, iron, lead, nickel, and manganese. The effluent limitations for these pollutants are less stringent than those in Order R5-2015-0002. This relaxation or removal of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits "except in compliance with Section 303(d)(4)." CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.
 - i. For waters where standards are not attained, CWA section 303(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLAs will assure the attainment of such water quality standards.

- ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

Kanaka Creek is considered an attainment water for cadmium, copper, electrical conductivity, iron, lead, nickel and manganese because the receiving water is not listed as impaired on the 303(d) list for these constituents. The exceptions in section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list. As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal or relaxation of the effluent limitations for cadmium, copper, electrical conductivity, iron, lead, nickel and manganese from Order R5-2015-0002 meets the exception in CWA section 303(d)(4)(B).

- b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2015-0002 was issued indicates that cadmium, copper, electrical conductivity, lead, and manganese do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the removal or relaxation of effluent limitations for these constituents includes the following:

- i. **Cadmium, Copper and Lead.** Effluent monitoring data collected between April 2017 and May 2020 indicates that cadmium, copper, and lead in the discharge do not exhibit reasonable potential to cause or contribute to an exceedance of the CTR aquatic life criteria for cadmium, copper, and lead.
- ii. **Electrical Conductivity.** Effluent monitoring data collected between April 2017 and May 2020 indicates that electrical conductivity in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL. This Order relaxes the annual average effluent limitation from 900 $\mu\text{mhos/cm}$ to a performance-based limit of 2,200 $\mu\text{mhos/cm}$ to reflect data that was not available at the adoption of Order R5-2015-0002.
- iii. **Manganese.** Effluent monitoring data collected between April 2017 and May 2020 indicates that manganese in the discharge does not

exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

Thus, removal or relaxation of the effluent limitations for cadmium, copper, electrical conductivity, iron, lead, and manganese from Order R5-2015-0002 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

- c. **Flow.** Order R5-2015-0002 included flow as an effluent limit at Discharge Point 001 based on the Facility flow. In accordance with Order R5-2015-0002, compliance with the flow limit was estimated. Flow from a mine is dependent on groundwater recharge and cannot be controlled by the Discharger. Flow is not a pollutant, and it is not appropriate to require the Discharger to meet a flow requirement that is out of their control; therefore, the effluent limitation for flow has been removed and replaced with a discharge prohibition in this Order, which is an equivalent level of regulation.
- d. **Arsenic.** For arsenic, the MDEL has changed from the previous Order. However, the effluent limit is not less stringent. In this case, the wasteload allocation (WLA) in this Order and the previous Order are identical. The WLA provides a definition of effluent quality that is necessary to meet the water quality standards of the receiving water and is used to derive WQBEL's that are used to enforce the WLA.

The TSD warns that, "*Direct use of a WLA as a permit limit creates a significant risk that the WLA will be enforced incorrectly, since effluent variability and the probability basis for the limit are not considered specifically.*" (TSD, p. 96) The SIP and TSD include identical procedures for calculating WQBEL's that use the statistical variability of the effluent to convert the WLA to AMEL's and MDEL's.

The new effluent data used to calculate WQBEL's for this Order has different statistical variability (i.e., coefficient of variation is different) than used in the previous Order. Changes in the coefficient of variation can result in small changes to the effluent limits. However, the slight changes in effluent limits do not allow for an increase in the pollutants discharged. The TSD states, "*Since effluents are variable and permit limits are developed based on a low probability of exceedance, the permit limits should consider effluent variability and ensure that the requisite loading from the WLA is not exceeded under normal conditions. In effect then, the limits must "force" treatment plant performance, which, after considering acceptable effluent variability, will only have a low statistical probability of exceeding the WLA and will achieve the desired loadings.*" (TSD, p. 97) Therefore, although there are slight differences in the effluent limit, the WLA is identical, so the level of treatment or control needed to maintain

compliance with the effluent limit remains the same. Consequently, the effluent limit is not less stringent than the previous Order, and there is no backsliding.

WQBEL's for arsenic were calculated based on monitoring data collected between April 2017 and May 2020, which is representative of current Facility performance. Therefore, Central Valley Water Board staff considers this effluent data to be the most representative and reliable dataset to use to determine current Facility performance and development of WQBEL's.

The MDEL for arsenic in this Order was calculated as a higher value than in previous Order. However, the AMEL remains the same. The WQBEL's in both Orders are based on the same WLA (i.e., the WLA is based on the CTR human health criterion for arsenic). The reason for the change in the MDEL is due to a change in the variability of the effluent data for arsenic. The WQBEL's, however, are equally protective of the beneficial uses. The level of treatment or control needed to maintain compliance with the effluent limits remains the same. Consequently, the effluent limits are not less stringent than the previous permit, and there is no backsliding.

4. Antidegradation Policies

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes or relaxes effluent limitations for cadmium, copper, electrical conductivity, iron, lead, and manganese based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The removal or relaxation of WQBEL's for these parameters will not result in an increase in pollutants concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal relaxation of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the removal or relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

This Order also removes the annual average effluent limitation for iron based on 40 C.F.R part 122.45(d), and as described further in section IV.D.3 of this Fact Sheet. The removal of the annual average effluent limitation for iron will not result in a decrease in the level of treatment or control, or a reduction in water quality since this Order includes an AMEL and MDEL based on the Secondary MCL, which is equivalent to the annual average effluent limitation. Therefore, the Central Valley Water Board finds that the removal of the annual average effluent limitation for iron does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Antidegradation Policy.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on cadmium, copper, lead, mercury, TSS, and zinc. Restrictions on cadmium, copper, lead, mercury, TSS, and zinc are discussed in section IV.B and IV.C.3.a of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. For pH, both technology-based effluent limitations and water quality-based effluent limitations are applicable. The more stringent of these effluent limitations are implemented by this Order.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
Discharge Point 001**

Table F-11. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis¹
Total Suspended Solids	mg/L	AMEL 20 MDEL 30	ELG
Cadmium, Total	µg/L	AMEL 50 MDEL 100	ELG
Copper, Total	µg/L	AMEL 150 MDEL 300	ELG
Lead, Total	µg/L	AMEL 300 MDEL 600	ELG
Mercury, Total	µg/L	AMEL 1 MDEL 2	ELG
Antimony, Total	µg/L	AMEL 5.6 MDEL 11	CTR
Arsenic, Total	µg/L	AMEL 10 MDEL 22	CTR
Electrical Conductivity	µmhos/cm	AA 2,200	PB
Iron, Total	µg/L	AMEL 590 MDEL 770	SMCL
Nickel, Total	µg/L	AMEL 45 MDEL 89	CTR
pH	SU	Instantaneous Max 8.5 Instantaneous Min 6.5	BP
Acute Toxicity	% Survival	70%, minimum for any one bioassay; 90%, median for any three consecutive bioassays	BP

Table F-11 Notes:

- BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
ELG – Based on Effluent Limit Guidelines contained in 40 C.F.R. part 440 for the Ore Mining and Dressing Point Source Category, Subpart J, Copper, Lead, Zinc, Gold, Silver, and Molybdenum Subcategory
PB – Performance-based Limit
SMCL – Based on the Secondary Maximum Contaminant Level.

- E. Interim Effluent Limitations – Not Applicable**
- F. Land Discharge Specifications – Not Applicable**
- G. Recycling Specifications – Not Applicable**

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for chemical constituents, color, dissolved oxygen, floating material, pH, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater – Not Applicable

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. **Reclassification of Mine Drainage.** If analytical monitoring results consistently indicate that the mine's treatment system or best management practices reduce constituent concentrations below water quality objectives, the mine drainage may be reassessed and this Order may be reopened and modified.
- b. **New Milling Activities.** This Order contains waste discharge requirements applicable to the current mining activities. This provision allows the Central Valley Water Board to reopen this Order in the event the Discharger re-initiates milling activities or conducts more extensive mining activities.
- c. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.
- d. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total when developing effluent limitations for nickel. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- e. **Dilution/Mixing Zones Study.** In order for the Central Valley Water Board to allow dilution credits for the calculation of WQBEL's for the protection of aquatic life or human health, the Discharger must submit an approved Dilution/Mixing Zone Study which meets all of the requirements of Section 1.4.2.2 of the SIP. Upon submission of an approved Dilution/Mixing Zone Study that meets all of the requirements of Section 1.4.2.2 of the SIP, including defining the boundaries of the acute, chronic, and human health mixing areas, the Central Valley Water Board may reopen this Order to include effluent limitations based on the appropriate dilution factor for the protection of aquatic life or human health.

- f. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On January 17, 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on November 2, 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments.

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at section 3.1.20.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring to demonstrate compliance with the Basin Plan’s narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger this provision requires the Discharger either participate in an approved Toxicity Evaluation Study (TES) or conduct a site-specific Toxicity Reduction Evaluation (TRE).

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low-level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, the Central Valley Clean Water Association (CVCWA), in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-3), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

Figure F-3: WET Accelerated Monitoring Flow Chart

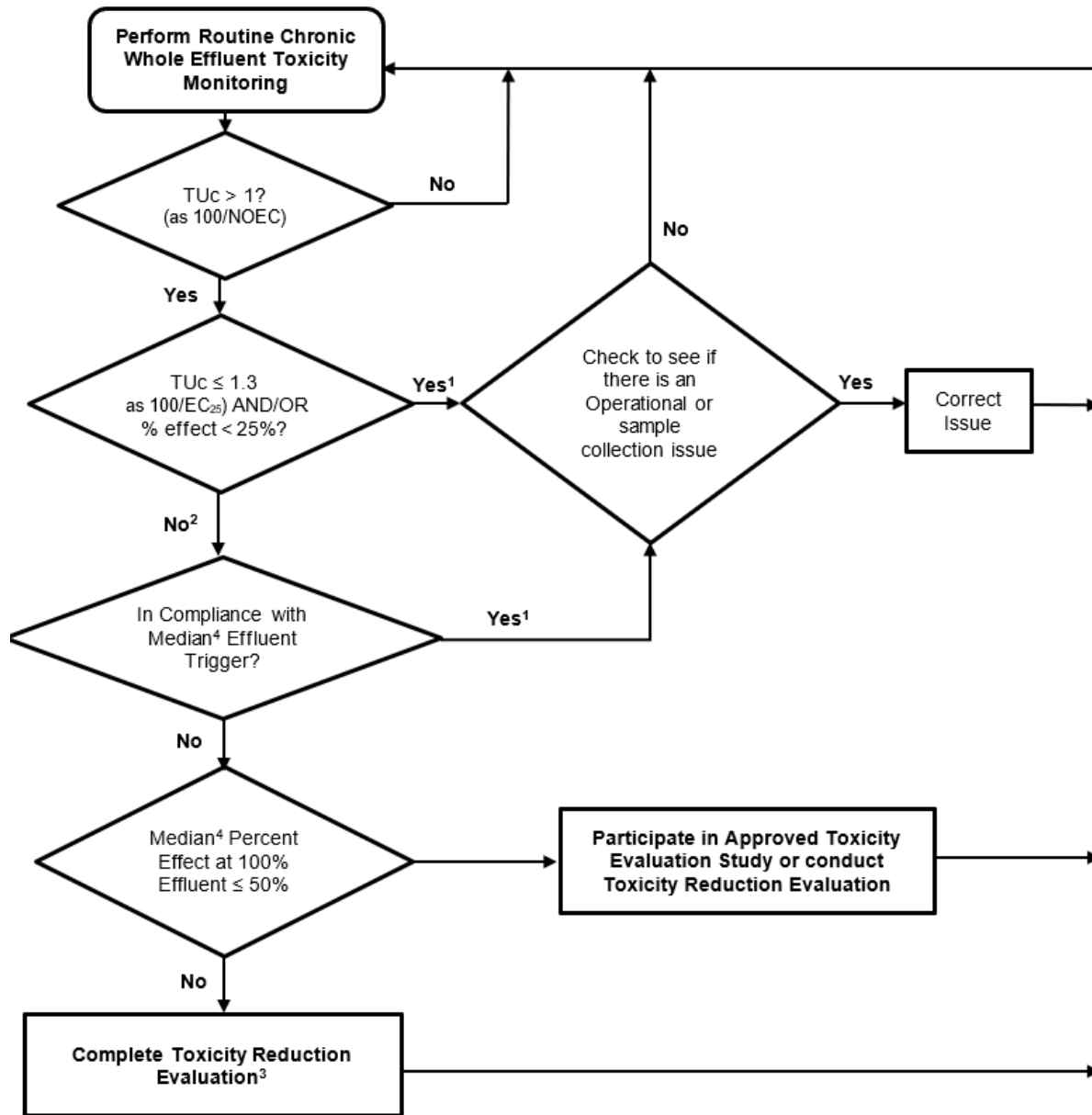


Figure F-3 Notes:

1. The Discharger may participate in an approved TES if the discharge has exceeded the chronic toxicity monitoring trigger twice or more in the past 12-month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.
3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
4. See Compliance Determination section VII.C for procedures for calculating 6-week median.

3. Best Management Practices and Pollution Prevention

- a. **Annual Best Management Practices Report.** This Order requires the Discharger to submit annual reports to ensure adequate measures are implemented by the Discharger to reduce the discharge of constituents of concern to Kanaka Creek. An annual status report regarding the implementation of best management practices shall be submitted to the Central Valley Water Board including:
 - i. A summary of all actions undertaken pursuant to best management practices including, but not limited to:
 - (a) any treatment installed to reduce pollutant concentrations
 - (b) mine maintenance activities that have the potential to affect pollutant concentrations in the effluent
 - (c) actions taken to reduce infiltration into the mine workings
 - ii. A description of actions to be taken in the following year
- b. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Kanaka Creek.

4. Construction, Operation, and Maintenance Specifications – Not Applicable

5. Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable

6. Other Special Provisions

- a. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if and when there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.

7. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements.

The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequency and sample types for arsenic (quarterly), antimony (quarterly), cadmium (quarterly), copper (quarterly), dissolved oxygen (quarterly), EC (quarterly), hardness (quarterly), iron (quarterly), lead (quarterly), nickel (quarterly), and TSS (quarterly) have been retained from Order R5-2015-0002 to determine compliance with effluent limitations for these parameters.
3. Monitoring data collected over the previous permit term for manganese did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2015-0002.
4. Water Code section 13176, subdivision (a), states: “The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.” The DDW accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).
5. Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Wat. Code sections 13370, subd. (c), 13372, 13377.). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code section 13372, subd. (a).) Lab accreditation is not required for field tests such as tests for color, odor, turbidity, pH, temperature, dissolved oxygen, electrical conductivity, and disinfectant residual. Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Chronic Toxicity.** Once per permit term chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective and the acute toxicity effluent limitations.

D. Receiving Water Monitoring

1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. The quarterly receiving water monitoring and sample types for arsenic, pH, dissolved oxygen, electrical conductivity, hardness, temperature, and turbidity at Monitoring Locations RSW-001 and RSW 002 have been retained from Order R5-2015-0002 to determine compliance with the applicable receiving water limitations and characterize the receiving water for these parameters.
- c. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent and receiving water monitoring for priority pollutants and other constituents of concern once during the year 2022 at Monitoring Location EFF-001 and RSW-001, in order to collect data to conduct an RPA for the next permit renewal.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. section 1318), U.S. EPA requires all dischargers under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S.EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from their own laboratories or their contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall submit annually the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance

Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for Sixteen to One Mine. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following posting on the Central Valley Water Board's website on **13 April 2021** and through posting by the Discharger at the Alleghany Post Office and Sierra County Courthouse on **14 April 2021** and **16 April 2021**, respectively, and the Facility entrance on **14 April 2021**.

The public had access to the agenda and any changes in dates and locations through the [Central Valley Water Board's website](http://www.waterboards.ca.gov/centralvalley/board_info/meetings/) (http://www.waterboards.ca.gov/centralvalley/board_info/meetings/)

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **13 May 2021**.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: 17 June 2021
Time: 8:30 a.m.
Location: Online

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

[Instructions on how to file a petition for review](http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instructions.shtml)

(http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instructions.shtml) are available on the Internet.

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Michelle Snapp at (916) 464-4824.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Abbreviations used in this table:

- MEC = Maximum Effluent Concentration
- B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
- C = Criterion used for Reasonable Potential Analysis
- CMC = Criterion Maximum Concentration (CTR or NTR)
- CCC = Criterion Continuous Concentration (CTR or NTR)
- Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
- Org Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
- Basin Plan = Numeric Site-Specific Basin Plan Water Quality Objective
- MCL = Drinking Water Standards Maximum Contaminant Level
- NA = Not Available
- ND = Non-detect

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Antimony	µg/L	33.3	5.8	5.6	--	--	5.6	640	--	6	Yes
Arsenic	µg/L	1,308	599	10	340	150	--	--	--	10	Yes
Cadmium	µg/L	<0.5	<0.5	2.6	4.0	2.6	--	--	--	5	No
Chloride	mg/L	155	0.94	230	860 (See Table Note 2)	230 (See Table Note 3)	--	--	--	250	No
Copper	µg/L	8.12	1.6	9.6	15	9.6	1,300	--	--	1,300	No
Electrical Conductivity @ 25°C	µmhos/cm	1,704 (See Table Note 4)	234 (See Table Note 4)	1,600	--	--	--	--	--	1,600	No
Iron	µg/L	377 (See Table Note 4)	356 (See Table Note 4)	300	--	--	--	--	--	300	Yes
Lead	µg/L	2.07	<0.5	2.4	61	2.4	--	--	--	15	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Manganese	µg/L	40 (See Table Note 4)	3.034 (See Table Note 4)	50	--	--	--	--	--	50	No
Mercury	µg/L	<0.20 (See Table Note 4)	0.22 (See Table Note 4)	0.12	--	--	0.050	0.051	--	0.012	No
Nickel	µg/L	106.3	9.34	54	490	54	610	4,600	--	100	Yes
Sulfate	mg/L	309 (See Table Note 4)	3.48 (See Table Note 4)	500	--	--	--	--	--	500	No
Total Dissolved Solids	mg/L	940 (See Table Note 4)	52 (See Table Note 4)	1000	--	--	--	--	--	1000	No
Zinc	µg/L	9 (DNQ)	<25	120	120	120	7,400	26,000	--	5,000	No

Table Notes:

1. All inorganic concentrations are given as a total concentration.
2. U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
3. U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-hour average.
4. Represents the maximum observed annual average concentration for comparison with the Secondary MCL or Sport Fish Water Quality Objective for mercury, where applicable.

ATTACHMENT H – CALCULATION OF WQBEL’S

Abbreviations used in the following table:

- CV = Coefficient of Variation
- MDEL = Maximum Daily Effluent Limitation
- AMEL = Average Monthly Effluent Limitation
- MDEL = Maximum Daily Effluent Limitation
- AWEL = Average Weekly Effluent Limitation

HUMAN HEALTH WQBEL’S CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV (See Table Note 1)	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL (See Table Note 2)	MDEL
Antimony, Total	µg/L	5.6	2	0.6	--	2.01	1.55	5.6	11
Arsenic, Total	µg/L	10	130	0.6	--	2.07	1.59	10	22
Iron, Total	µg/L	300	356	1.0	--	2.55	1.98	590	770

Table Notes:

1. Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.
2. Calculated by setting the LTA equal to the Secondary MCL of 200 µg/L and using the AMEL multiplier to set the AMEL. The AWEL was calculated from the AMEL using the MDEL/AMEL multiplier. (Table 2 of the SIP)

ATTACHMENT H – CALCULATION OF WQBEL’S

Abbreviations used in the following table:

- AMEL = Average Monthly Effluent Limitation
- AWEL = Average Weekly Effluent Limitation B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
- CMC = Criterion Maximum Concentration (CTR or NTR)
- CCC = Criterion Continuous Concentration (CTR or NTR)
- CV = Coefficient of Variation (established in accordance with section 1.4 of the SIP)
- DF = Dilution Factor
- ECA Effluent Concentration Allowance
- LTA Aquatic Life Calculations – Long-Term Average
- MDEL = Maximum Daily Effluent Limitation
- Mult = Multiplier

AQUATIC LIFE WQBEL’S CALCULATIONS

Parameter	Units	CMC Criteria	CCC Criteria	B	Effluent CV (See Table Note 1)	CMC DF	CCC DF	ECA Mult _{acute}	LTA _{acute}	ECA Mult _{chronic}	LTA _{chronic}	AMEL Mult ₉₅	AWEL Mult	MDEL Mult ₉₉	AMEL (See Table Note 2)	AWEL (See Table Note 3)	MDEL (See Table Note 4)
Nickel, Total	µg/L	54	490	9.34	0.6	--	--	0.32	157	0.53	29	1.55	--	3.09	45	--	89

Table Notes:

1. Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.
2. Average Monthly Effluent Limitations are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.
3. Average Weekly Effluent Limitations are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.
4. Maximum Daily Effluent Limitations are calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.