

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0084905
 ORDER R5-2022-XXXX**

**WASTE DISCHARGE REQUIREMENTS FOR THE U.S. DEPARTMENT OF THE INTERIOR,
 BUREAU OF RECLAMATION SLIGER MINE, EL DORADO COUNTY**

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

Table 1. Discharger Information

Discharger:	U.S. Department of the Interior, Bureau of Reclamation
Name of Facility:	Sliger Mine
Facility Street Address:	Approximately 1,500 feet south of the junction of Sliger Mine Road and Fox Grove Lane
Facility City, State, Zip:	El Dorado County, California
Facility County:	El Dorado County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Mine Drainage	38° 56' 22" N	120° 56' 13" W	Middle Fork, American River

Table 3. Administrative Information

This Order was Adopted on:	XX February 2022
This Order shall become effective on:	1 April 2022
This Order shall expire on:	31 March 2027
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 March 2026
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 **XX February 2022**.

PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the Sliger 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 E and G through H are also incorporated into this Order.
- D. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections **IV.B, IV.C, and V.B** are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- E. Monitoring and Reporting.** 40 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.

- F. 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.
- G. 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 R5-2015-0121 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 Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

- D. Discharge of waste classified as ‘hazardous’, as defined in the California Code of Regulations, title 22, section 66261.1 et seq., is prohibited.
- E. **Average Dry Weather Flow.** Discharges exceeding an average dry weather flow of 0.194 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

Parameters	Units	Average Monthly	Annual Average	Maximum Daily
Arsenic, Total	micrograms per liter (µg/L)	140	--	280
Copper, Total	micrograms per liter (µg/L)	31	--	62
Lead, Total	micrograms per liter (µg/L)	11	--	22
Chromium, Total	micrograms per liter (µg/L)	150	--	290
Nickel, Total	micrograms per liter (µg/L)	92	--	180

- 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.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Middle Fork of the American River:

1. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
2. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
3. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
4. **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.
5. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
6. **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.
7. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
8. **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.
9. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
10. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

11. **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.
12. **Temperature.** The natural temperature to be increased by more than 5° Fahrenheit. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
13. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
14. **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. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

- b. 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 CFR 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.

- c. 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.

- d. 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.

- e. 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.
- f. 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.
- 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. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

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 CFR 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. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened, and the mass effluent limitation modified (higher or

lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

- d. **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 hardness dependent metals. 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.
- e. **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.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP section V. Furthermore, 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 numeric toxicity monitoring trigger during accelerated monitoring established 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. TREs 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. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

- i. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.
- ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is $>1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.
- iii. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14-days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four chronic toxicity tests conducted once every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:
 - (a) If the results of four consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.
 - (b) 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 continue accelerated monitoring until four consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.
 - (c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective

actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

- (1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
- (2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
- (3) A schedule for these actions.

- 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 E-8 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. Furthermore, if the effluent annual average calendar year electrical conductivity concentration exceeded 1,300 $\mu\text{mhos/cm}$ during the term of this Order, the salinity evaluation and minimization plan shall be reviewed and updated. The updated salinity evaluation and minimization plan shall be submitted with the Report of Waste Discharge in which the electrical conductivity concentration exceeded 1,300 $\mu\text{mhos/cm}$.

3. **Best Management Practices and Pollution Prevention – Not Applicable**

4. **Construction, Operation and Maintenance Specifications**

- a. **Treatment System/Infiltration Gallery Operation and Maintenance Specifications.** The treatment system/infiltration gallery must be operated in accordance with an operations and maintenance plan that assures continued optimal operation of the treatment system/infiltration gallery. The treatment system operation and maintenance plan shall be completed and submitted to the Central Valley Water Board by the due date in the Technical Reports Table E-8 of this Order
 - i. The Discharger shall conduct quarterly inspections of the existing and any new units of the treatment system/infiltration gallery to make observations, statements, take photographs, and maintain the treatment system/infiltration gallery, piping, and flow structures as follows:

- a. Visual inspection of the treatment system/infiltration gallery berms and levees, influent, and effluent, flow/no flow to the river;
 - b. Statement by inspecting staff regarding condition of berms, levees, and other components of the treatment system/infiltration gallery;
 - c. Statement by inspecting staff that there is or is not flow to the River from the V-Adit;
 - d. Statement by inspecting staff that there is or is not flow to the River from the treatment system/infiltration gallery;
 - e. Include any documentation (e.g. photographs) of the treatment system/infiltration gallery and/or of unsafe conditions that prevent quarterly sampling; and
 - f. Address any corrective actions that require future activity at the treatment system/infiltration gallery with a schedule for conducting the repairs.
- ii. The Discharger shall report the observations, statements, and maintenance needs in an addendum to the quarterly SMR, with a schedule for completion of any repairs.
 - iii. The Discharger shall submit an operations and maintenance plan for the existing treatment system/infiltration gallery.

- 5. **Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**
- 6. **Other Special Provisions – Not Applicable**
- 7. **Compliance Schedules – Not Applicable**

VII. COMPLIANCE DETERMINATION

- A. **Average Dry Weather Flow Prohibition (Section III.E).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow discharge prohibition will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).
- B. **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.

ATTACHMENT A – DEFINITIONS

1Q10

The lowest one-day flow with an average reoccurrence frequency of once in ten years.

7Q10

The lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years

Acute Aquatic Toxicity Test

A test to determine an adverse effect (usually lethality) on a group of aquatic test organisms during a short-term exposure (e.g., 24, 48, or 96 hours).

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.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

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.

Calendar Month(s).

A period of time from a day of one month to the day before the corresponding day of the next month if the corresponding day exists, or if not to the last day of the next month (e.g., from January 1 to January 31, from June 15 to July 14, or from January 31 to February 28).

Calendar Quarter

A period of time defined as three consecutive calendar months.

Calendar Year

A period of time defined as twelve consecutive calendar months.

Chronic Aquatic Toxicity Test

A test to determine an adverse effect (sub-lethal or lethal) on a group of aquatic test organisms during an exposure of duration long enough to assess sub-lethal effects.

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).

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake’s Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

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. A measured response of a receptor to a stressor. An endpoint can be measured in a toxicity test or field survey.

Estimated Chemical Concentration

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

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

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 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.

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.

Not Detected (ND)

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

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).

Ocean Waters

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board’s California Ocean Plan.

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.

Satellite Collection System

The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

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:

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

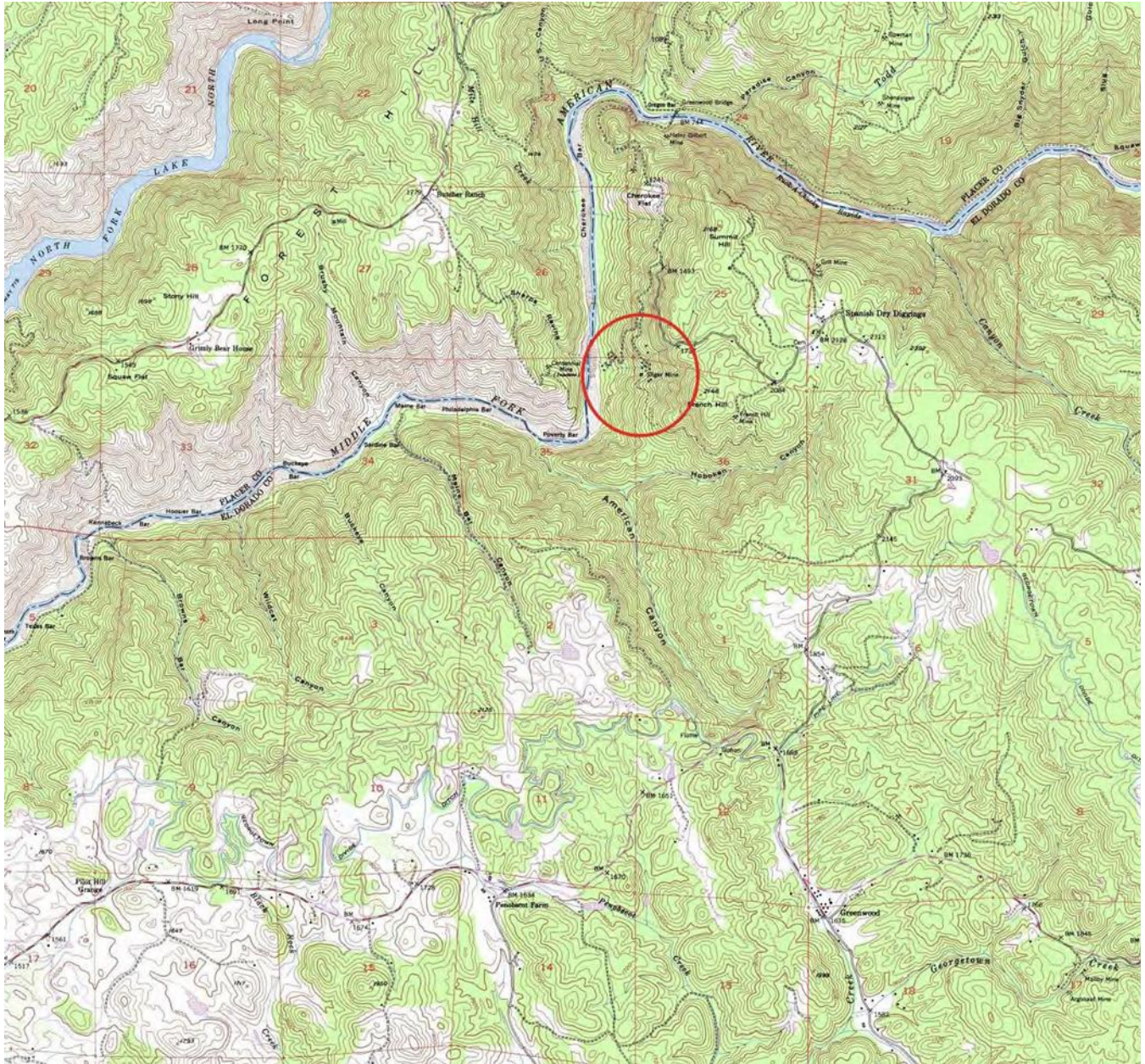
where:

- x is the observed value;
- μ is the arithmetic mean of the observed values; and
- n is the number of samples.

Toxicity Reduction Evaluation (TRE)

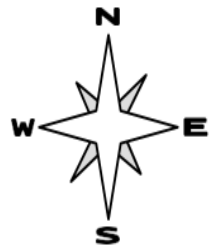
TRE is a study conducted in a stepwise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection 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

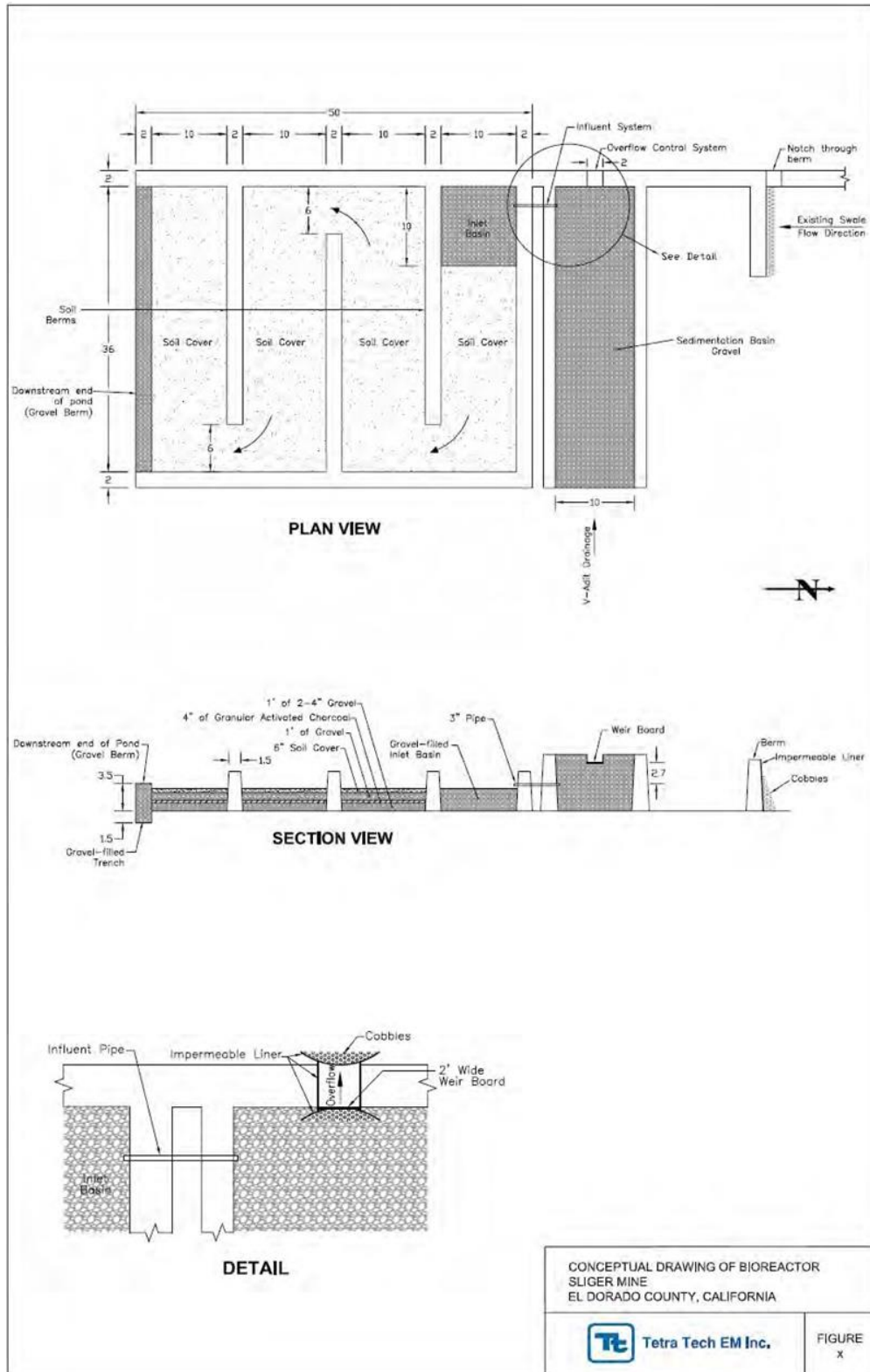


DRAWING REFERENCE:
Greenwood, California
U.S.G.S Topographic Map
7.5 Minute Quadrangle
Photorevised 1973
Not to scale

SITE LOCATION MAP
US Department of the Interior
Bureau of Reclamation
Sliger Mine
El Dorado County



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 either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. section 122.22(a)(3).)
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.

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 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 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), 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
--	VAD-001	Prior to the treatment system; discharge from the mine at the V-Adit (formerly EFF-002)
--	INF-001	Prior to the treatment system; inflow to the treatment system/infiltration gallery
001	EFF-001	Downstream from the last connection through which treated effluent from the V-Adit can be admitted into the outfall, prior to discharge to the receiving water; effluent from the treatment system (latitude 38° 56' 26" N; longitude 120° 56' 13" W)
--	RSW-001	50 feet upstream from the point of discharge into the Middle Fork of the American River
--	RSW-002	100 feet downstream from the point of discharge into the Middle Fork of the American River

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent at INF-001 in accordance with Table E-2 and the testing requirements described in section III.A.2 below:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow, diverted through the treatment system/infiltration gallery for treatment/infiltration	MGD	Estimate	1/Quarter
Flow, diverted around the treatment system/infiltration gallery for discharge directly to Middle Fork American River at Discharge Point 001	MGD	Estimate	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. **Estimate.** Estimate of influent flow, recorded for each day of sample collection. Flow samples shall not be collected at the same time each day to get a complete representation of variations in the influent.
- b. **Flow.** Inability to collect quarterly flow data, after making three attempts per quarter, at the treatment system/infiltration gallery due to unsafe conditions shall be described and documented (e.g with photographs) in an addendum to the quarterly monitoring report.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

- 1. The Discharger shall monitor the effluent at EFF-001 in accordance with Table E-3 and the testing requirements described in section IV.A.2 below:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Estimate	1/Quarter
Arsenic, Total	µg/L	Grab	1/Quarter
Copper, Total	µg/L	Grab	1/Quarter
Lead, Total	µg/L	Grab	1/Quarter
Chromium, Total	µg/L	Grab	1/Quarter
Nickel, Total	µg/L	Grab	1/Quarter
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Quarter
Hardness, Total (as CaCO3)	mg/L	Grab	1/Quarter
pH	standard units	Grab	1/Quarter
Temperature	°F	Grab	1/Quarter

- 2. **Table E-3 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-3:
 - a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR 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 CFR part 136 allowed sample type.
 - b. **Handheld Field Meter.** A handheld field meter may be used for **electrical conductivity, temperature** 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. **Hardness** samples shall be collected concurrently with metals samples.
- d. **Priority Pollutants.** For all priority pollutant constituents listed in Table E-6 the RL shall be consistent with sections 2.4.2 and 2.4.3 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP) and the SSM Rule specified under 40 C.F.R. sections 122.21(e)(3) and 122.44(i)(1)(iv).

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the treatment system effluent is contributing acute toxicity to the receiving water. Acute toxicity shall be monitored at Monitoring Location EFF-001. Inability to collect samples for the acute toxicity test, after making three attempts shall be described and documented (e.g. with photographs) in an addendum to the quarterly monitoring report. The Discharger shall meet the following acute toxicity testing requirements:

1. **Monitoring Frequency** – The Discharger shall perform **annual** acute toxicity testing.
2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.
3. **Test Species** – Test species shall be fathead minnows (*Pimephales promelas*).
4. **Methods** – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. **Test Failure** – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall meet the following chronic toxicity testing requirements:

1. **Monitoring Frequency** – The Discharger shall perform the three species chronic toxicity test **one time per permit term**.

2. **Sample Types** – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, 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, *Pseudokirchneriella subcapitata* (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-4, 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-4. Chronic Toxicity Testing Dilution Series

Sample	Dilution (100%)	Dilution (75%)	Dilution (50%)	Dilution (25%)	Dilution (12.5%)	Dilution (6.25%)	Control
% Effluent	100	75	50	25	12.5	6.25	0
% Control Water	0	25	50	75	87.5	93.75	100

Table E-4 Testing Requirements. Receiving water control or laboratory water control may be used as the diluent.

8. **Test Failure** – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

- 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 Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii of the Order.)

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 monitoring trigger during regular or accelerated monitoring, 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** – Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self monitoring report, 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 result where it can be determined;
- 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. **Acute WET Reporting** – Acute toxicity test results shall be submitted with the quarterly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting** – Reports for TREs 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.
4. **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 Location RSW-001 and RSW-002

1. A log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002 when discharging to the Middle Fork of the American River. **Quarterly** observations 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 shall be reported in an addendum to the quarterly SMRs.

B. Monitoring Location – Groundwater – Not Applicable

IX. OTHER MONITORING REQUIREMENTS

A. Quarterly Facility Inspections

The Discharger shall conduct **quarterly** Facility inspections of the existing and any new units of the treatment system/infiltration gallery to make observations, statements, take photographs, and maintain the treatment system/infiltration gallery, piping, and flow structures as follows:

- Visual inspection of the treatment system/infiltration gallery berms and levees, influent, and effluent, flow/no flow to the river;
- Statement by inspecting staff regarding condition of berms, levees, and other components of the treatment system/infiltration gallery;
- Statement by inspecting staff that there is or is not flow to the Middle Fork American River from the V-Adit;
- Statement by inspecting staff that there is or is not flow to the River from the treatment system/infiltration gallery;
- Include any documentation (e.g., photographs) of the treatment system/infiltration gallery and/or of unsafe conditions that prevent quarterly sampling; and
- Address any corrective actions that require future activity at the treatment system/infiltration gallery with a schedule for conducting the repairs.

Observations, statements, photographs, and maintenance needs shall be reported in an addendum to the quarterly SMRs.

B. Liquid Mining Waste Discharge Characterization.

1. Monitoring Location INF-001

- a. **If the Discharger is not able to collect a sample from EFF-001 by 31 March 2024**, samples shall be collected from the influent to the bioreactor (Monitoring Location INF-001) **quarterly** between **1 April 2024 and 31 March 2025** for the constituents listed in Table E-5 and the testing requirements described in section XI.B.2 below:

Table E-5. Liquid Mining Waste Discharge Characterization at INF-001

Parameter	Units	Sample Type
Flow	mgd	Estimate
pH	standard units	Grab
Dissolved Oxygen	mg/L	Grab
Electrical Conductivity	µmhos/cm	Grab

Parameter	Units	Sample Type
Hardness, Total (as CaCO ₃)	mg/L	Grab
Aluminum, Total	µg/L	Grab
Arsenic, Total	µg/L	Grab
Barium, Total	µg/L	Grab
Cadmium, Total	µg/L	Grab
Chromium, Total	µg/L	Grab
Copper, Total	µg/L	Grab
Cyanide	µg/L	Grab
Iron, Total	µg/L	Grab
Lead, Total	µg/L	Grab
Manganese, Total	µg/L	Grab
Mercury, Total	µg/L	Grab
Nickel, Total	µg/L	Grab
Silver, Total	µg/L	Grab
Zinc, Total	µg/L	Grab

2. **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 CFR 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 CFR part 136 allowed sample type.
 - b. **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.
 - c. **Hardness.** Samples shall be collected on the same day as the effluent metals samples.

C. Effluent and Receiving Water Characterization

1. Monitoring Frequency

- a. **Effluent Sampling.** Samples shall be collected from the effluent (Monitoring Location EFF-001) **once between 1 October 2022 and 31 March 2024** for the constituents listed in Table E-6 below. If no flows are observed from the Bioreactor's effluent during sampling times between 1 October 2022 and 31 March 2024, samples shall be collected from the influent to the bioreactor (Monitoring Location INF-001), **once between 1 April 2024 and 31 March 2025** for all the constituents listed in Table E-6 below in addition to the monitoring required in section IX.B Liquid Mining Waste Discharge Characterization above.
- b. **Receiving Water Sampling.** Samples shall be collected from the upstream receiving water (Monitoring Location RSW-001) **once between 1 October 2022 and 31 March 2025** for the constituents listed in Table E-6 below, **concurrent with the samples collected from either EFF-001 or INF-001.**

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 (RLs) 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-6 and the testing requirements described in section IX.E.4 below.

Table E-6. 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
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
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

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
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
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

CTR Number	Non-Metal/Mineral Parameters	CAS Number	Units	Effluent Sample Type
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
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	Foaming Agents (MBAS)	MBAS	mg/L	Grab
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
NL	Ammonia (as N)	7664-41-7	mg/L	Grab
NL	Nitrate (as N)	14797-55-8	mg/L	Grab
NL	Nitrite (as N)	14797-65-0	mg/L	Grab

4. **Table E-6. Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-6:
- a. **Applicable to All Parameters.** Pollutants 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-6.
 - d. **Concurrent Sampling.** Effluent or influent water sampling 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-6.
 - 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 (SMRs)

1. The Discharger shall electronically submit SMRs 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 SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs 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. Monthly SMRs are required even if there is no discharge. If no discharge occurs during the month, 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-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
1/Quarter	Permit effective date	1 April through 30 June 1 July through 30 September	1 August 1 November

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
		1 October through 31 December 1 January through 31 March	1 February of following year 1 May
2/Year	Permit effective date	1 April through 30 September 1 October through 31 March	1 November 1 May 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 SMRs** 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 SMRs for which sample analyses were performed.
7. The Discharger shall submit in the SMRs calculations and reports in accordance with the following requirements:

- a. **Calendar Annual Average Trigger.** For constituents with effluent trigger 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.

C. Discharge Monitoring Reports (DMR’s)

1. DMRs 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 Study Reports and Progress Reports.** As specified in the compliance time schedules required in the Special Provisions contained in section VI of this Order, special study and progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.
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 RLs 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 (MLs) in the SIP, Appendix 4. The “Reporting Level or RL” is synonymous with the “Method Minimum Level” described in the SSM Rule. 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 as outlined above in Attachment E, Section I.F. 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. **Annual Operations Report.** The Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing the following by the due date in the Technical Reports Table:

- a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
 - e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.
4. **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:
- a. Report of Waste Discharge (Form 200);
 - b. NPDES Form 1 (not needed if submitting Form 2A);
 - c. NPDES Form 2A;
 - d. NPDES Form 2S; and
 - e. **Salinity Evaluation and Minimization Plan.** This Order includes a calendar year annual average salinity trigger of 1,300 $\mu\text{mhos/cm}$ that when exceeded requires an update to the Salinity and Minimization Plan and submittal with the Report of Waste Discharge. If an update is not performed during the permit term, the Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge.
5. **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-8. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Intentionally left blank	Standard Reporting Requirements	Intentionally left blank	Intentionally left blank
1	Report of Waste Discharge	31 March 2026	ROWD
2	Analytical Methods Report	1 June 2022	MRP X.D.2
3	Annual Operations Report	1 February 2023	MRP X.D.3
4	Annual Operations Report	1 February 2024	MRP X.D.3
5	Annual Operations Report	1 February 2025	MRP X.D.3
6	Annual Operations Report	1 February 2026	MRP X.D.3
7	Annual Operations Report	1 February 2027	MRP X.D.3
Intentionally left blank	Other Reports	Intentionally left blank	Intentionally left blank
8	Salinity Evaluation and Minimization Plan	1 November 2023	WDR VI.C.2.b
9	Treatment System Operation and Maintenance Plan (Most Recently Updated)	1 August 2022	WDR VI.C.4.a

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B 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:	5A09NP00010
CIWQS Facility Place ID:	257425
Discharger:	U.S. Department of the Interior, Bureau of Reclamation
Name of Facility:	Sliger Mine
Facility Address:	Approximately 1,500 feet south of the junction of Sliger Mine Road and Fox Grove Lane
Facility City, State Zip:	El Dorado County, California 95635
Facility County:	El Dorado County
Facility Contact, Title and Phone Number:	Shalese Henderson, Physical Scientist, 916-537-7051
Authorized Person to Sign and Submit Reports:	Drew Lessard, Point of Contact, 916-989-7180
Mailing Address:	US Department of the Interior, Bureau of Reclamation, Central California Office 7794 Folsom Dam Road Folsom, CA 95630
Billing Address:	Same as above
Type of Facility:	Inactive former gold mine
Major or Minor Facility:	Minor
Threat to Water Quality:	2
Complexity:	B
Pretreatment Program:	Not Applicable
Recycling Requirements:	Not Applicable

Facility Permitted Flow:	0.194 million gallons per day (mgd) with existing bioreactor
Facility Design Flow:	0.194 mgd with existing bioreactor
Watershed:	Sacramento River
Receiving Water:	Middle Fork, American River
Receiving Water Type:	Inland surface water

- A.** The U.S. Department of the Interior, Bureau of Reclamation (hereinafter Discharger) is the owner of Sliger Mine (hereinafter Facility), an inactive 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 the Middle Fork of the American River, a water of the United States, tributary to the Sacramento River within the American River watershed. The Discharger was previously regulated by Order R5-2015-0121 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084905, adopted on 2 October 2015 and expired on 30 November 2020. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.
- C.** When applicable, state law requires dischargers to file a petition with the State Water Board, Division of Water Rights and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce any applicable requirements under Water Code section 1211. This is not an NPDES permit requirement.
- D.** 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 9 October 2020. The application was deemed complete on 9 October 2020.
- E.** 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

Sliger Mine started mining operations in 1864 and produced more than \$2.6 million of gold. Existing mining waste piles remaining at Sliger Mine were deposited before activity on site ceased in the 1940's. By 1953, most of the surface equipment had been sold. During operations in the 1870's, the ore was crushed in a stamp mill located on site. A larger stamp mill was installed in 1922, and in 1934 a ball mill and crushers replaced the stamp mill. The milled ore was passed through a rake classifier and then over a concentrator. The table tailings from the concentrator were sent to a conditioner and treated by flotation. The ore was mixed with sodium sulfate, pine oil, xanthate, copper sulfate, and soda ash in the flotation cells. Tailings from the flotation cells were passed over a concentrating table. Overflow from the table was thickened, dried, and shipped off site to the Selby smelter, in the San Francisco Bay Area, for gold recovery.

The ground surface of the mine encompasses approximately 6 acres of disturbed area. Significant site features include the following:

- A main production shaft that appears to have collapsed or been buried and is currently recognizable by remnants of the concrete supports.
- An inclined shaft that intersects the V-Adit between the adit portal and the main shaft. The portal of the inclined shaft appears to have collapsed, and an abandoned car remains at what appears to be the former opening.
- An apparent collapsed adit located east (uphill) from the main Sliger Mine area at an elevation of approximately 1,350 feet above sea level that might not be associated with the Sliger Mine.
- An open adit located 500 feet south of the main Sliger Mine area, of which the history is not known. The feature is generally referred to as the "South Sliger Adit."
- Concrete remains of a mine-related building located east (uphill) from the main production shaft, which may have been the former winch house.
- A concrete wall between the main production shaft and the building remnants that retains waste rock to form a flat pad (a presumed working area) on the steep hillside.
- Seven mining waste piles, including waste rock, tailings, and ore that were generated during on-site ore extraction and processing.
- Bioreactor/Infiltration Gallery

The Facility is currently an inactive historical gold mine located on federal lands administered by the U.S. Department of the Interior, Bureau of Reclamation (USBR). The Facility is located 6 miles northeast of the town of Cool and is 450 feet east of the Middle Fork American River and more than 200 feet higher in elevation. The mine consists of underground workings, mine openings, concrete foundations, and waste rock on the east side of the river canyon. USBR acquired the property as part of the land acquisition

associated with the Auburn Dam site. A mine opening known as the ventilation adit (V-Adit) was developed during active mining at the site.

Water that contains arsenic, iron, and other metals is discharged continuously from the V-Adit. The V-Adit drains at approximately 0.1 cubic feet per second (cfs) or 45 gallons per minute (gpm). In 2008, the Discharger estimated the V-Adit flows at 0.3 cubic feet per second during wet weather and 0.03 cfs during dry weather flows. Prior to installation of the bioreactor, discharge from the V-Adit flowed to the west in a drainage channel to the Middle Fork American River. The bioreactor was constructed so that it intercepts the drainage channel before it reaches the River and effluent from the bioreactor is directed to the drainage channel. The bioreactor is located approximately 25 feet higher in elevation than the Middle Fork American River.

The Discharger defines the site-specific wet season as 1 December through 31 May of each year and the site-specific dry season as 1 June through 30 November of each year. The wet season time frame is based on the fact that the V-Adit flows are dependent on groundwater levels in the vicinity of the V-Adit. The hydraulic conditions in the groundwater level near the V-Adit lag behind annual precipitation events because water must accumulate in the groundwater channels before the levels are high enough to affect the flows from the V-Adit.

A. Description of Wastewater and Biosolids Treatment and Controls

USBR evaluated several treatment alternatives including plugging the V-Adit, construction of an active treatment system at the V-Adit, land application, and semi-passive treatment systems.

In 2003, a preliminary underground survey of the Sliger Mine workings was completed to evaluate the feasibility of installing a hydraulic plug to prevent water discharge from the V-Adit. The primary source for the water discharging from the V-Adit is a rusted metal pipe that protrudes from the floor of the V-Adit approximately 305 feet in from the portal. The pipe presumably connects to deeper mine workings that have filled with groundwater. If the pipe were plugged, the water level in the main production shaft (located 15 feet further into the V-Adit from the pipe) would rise and continue to flow out the adit. Other alternatives were considered and rejected for various reasons. (Further information on the alternatives may be found in the Report of Waste Discharge for this Order.)

A semi-passive bioreactor/infiltration gallery treatment unit was selected as the most viable alternative for compliance with effluent limitations. When installed in 2008, the treatment unit was referred to as a bioreactor. Because the treatment unit may also be acting as an infiltration gallery, Central Valley Water Board staff now refers to the treatment unit as the bioreactor/infiltration gallery. In 2008 the bioreactor/infiltration gallery became operational for treatment of arsenic, iron, and other metals. Construction required minor repair of existing roads and temporary disturbance of a relatively flat area above the 100-year flood plain along the Middle Fork American River. No power is necessary to operate the bioreactor/infiltration gallery. As

designed, most inflow to the bioreactor/infiltration gallery evaporates, infiltrates, or is transpired by vegetation. The bioreactor was designed to create a reducing environment in which sulfate is reduced to sulfide to precipitate metals. Metal sulfides of iron and arsenic have much lower solubility than oxides and hydroxides, so a significant proportion of the arsenic is expected to precipitate within the bioreactor. Any arsenic remaining in solution would infiltrate and be removed from solution in the subsurface by attenuation mechanisms involving adsorption on iron oxides/hydroxides naturally present in the soil. The reduction of sulfate to sulfide results in removal of the major anion contributing to salinity. In addition, the growth of plants in the treatment cell would result in consumption of much of the water through evapotranspiration during low flow periods.

The bioreactor/infiltration gallery design consists of a flow control inlet structure, a reactive medium consisting of granular activated charcoal (GAC) in gravel, and an infiltration trench/berm. The bioreactor includes wooden baffles to direct flow in a sinuous path in order to increase the residence time for treatment. Water enters the bioreactor, flows through the gravel medium and into the trench. Under low flow conditions most of the water is expected to be consumed by plants or evaporated prior to reaching the trench. Under average flow conditions, the water is expected to infiltrate into the soil underlying the trench, preventing a direct overland discharge. During wet weather, storm water runoff from adjacent areas will infiltrate the treatment system. Under high flow conditions, an influent weir will direct flows in excess 0.3 cfs away from the reactor to protect the treatment system from exceeding its capacity. The redirected flows, consisting of a portion of the V-Adit drainage mixed with infiltrating storm water, will flow directly to the receiving water. High flows are anticipated to occur during significant rainfall events and during high rainfall years. Under these conditions, the flow in the receiving water would also be increased resulting in an increased dilution capacity and minimal if any impact on receiving water quality. During dry seasons, no visible flow may be observed exiting the bioreactor and flowing to the Middle Fork American River.

Arsenic and iron will accumulate in the bioreactor matrix (mixture of gravel and granular activated carbon). The metal loading to the bioreactor is expected to be low enough that significant accumulation of metals will not occur for several years. For example, at an average concentration of 65 µg/L arsenic and an average flow rate of 0.2 cfs, the annual load of arsenic from V-adit drainage to the bioreactor would be approximately 11.7 kilograms (kg). The mass of the bioreactor matrix is estimated to be approximately 212,000 kg; therefore, the arsenic concentration in the matrix will increase by approximately 55 mg/kg per year. Based on this approximation, the Discharger estimates that the cell matrix would need to be changed a minimum of every 9 years (at an average flow of 0.2 cfs). The actual average flow from 10 March 2004 to 12 September 2007 was 0.08 cfs and the average concentration of arsenic for the same period was 53 µg/L, so the medium is expected to last at least 18 years before being changed. The bioreactor designer recommended sampling for arsenic in the matrix in year 10 (2018); two 4-point composite samples will be collected from within the bioreactor matrix. System monitoring and repair was

also recommended on a quarterly basis. Sampling of the flow out of the V-Adit, effluent from the bioreactor, and receiving water was required twice per year in Order R5-2008-0168.

The design daily average flow capacity of the bioreactor/infiltration gallery is 0.194 million gallons per day (mgd).

During an inspection in April 2013, the bioreactor/infiltration gallery was found in disrepair. The mine was discharging to surface water without proper treatment, and arsenic was found in the bioreactor/infiltration gallery effluent at 28 µg/L and TDS was found both in the bioreactor influent/V-Adit effluent at 450 mg/L. During an inspection in October 2014, the bioreactor/infiltration gallery remained in disrepair, however, there was no visible effluent exiting from the bioreactor/infiltration gallery.

B. Discharge Points and Receiving Waters

1. The Facility is located in Sections 35 and 36, T13N, R9E, MDB&M, as shown in Attachment B, a part of this Order.
2. Up to 0.194 mgd treated mine drainage is discharged at Discharge Point 001 to the Middle Fork American River, a water of the United States at a point latitude 38° 56' 26.22" N and longitude 120° 56' 13.10" W. Flows of untreated mine drainage over 0.194 mgd are diverted around the bioreactor/infiltration gallery and discharged at the same location.
3. The Facility's discharge to the Middle Fork American River is located approximately 5 miles upstream of the confluence of the Middle and North Forks of the American River. Flow in the Middle Fork American River is controlled by releases from the Hell Hole Reservoir, which is managed by the Placer County Water Agency (PCWA) and is used to generate electricity. PCWA is required to maintain a minimum in-stream flow of 75 cubic feet per second (cfs) as measured at the Oxbow Powerhouse, which is several miles upstream of Sliger Mine. Seasonal flows in the Middle Fork American River are generally higher in the spring due to runoff and lower in the fall due to the summer dry period. Daily flows are higher in the afternoon and evening and lower in the early morning due to flow variations in response to varying consumer power demands. The nearest known downstream intake for drinking water supply and irrigation use is approximately 15 miles downstream from the point of discharge from Sliger Mine.

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

1. Effluent limitations contained in Order R5-2015-0121 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order would be shown in Table F-2a; however, no effluent monitoring samples were collected during the term of Order R5-2015-0121. EFF-001 is located downstream from the last

connection through which treated effluent from the mine can be admitted into the outfall, prior to discharge to the receiving water.

Table F-2a. Historic Effluent Limitations and Monitoring Data for EFF-001

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	mgd	AMEL -- MDEL 0.194 (average daily)	--	--	--
pH	pH units	Instantaneous Max 8.5 Instantaneous Min 6.5	--	--	--
Electrical Conductivity @ 25 °C	µmhos/cm	AMEL 1200 MDEL --	--	--	--
Arsenic, Total	µg/L	AMEL 130 MDEL 220	--	--	--
Acute Toxicity	% survival	AMEL -- MDEL --	--	--	--

- Effluent limitations contained in Order R5-2015-0121 for discharges from Discharge Point 001 (Monitoring Location VAD-001) and representative monitoring data from the term of the previous Order are as shown in Table F-2b. VAD-001 is located as close to the V-Adit opening as possible; prior to the treatment system and upstream of where the discharge has the potential to mix with storm water.

Table F-2b. Historic Effluent Limitations and Monitoring Data for VAD-001

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
pH	pH units	Instantaneous Max 8.5 Instantaneous Min 6.5	--	--	--
Electrical Conductivity @ 25 °C	µmhos/cm	AMEL 1200 MDEL --	--	--	1065
Arsenic, Total	µg/L	AMEL 130 MDEL 220	--	--	140
Acute Toxicity	% survival	AMEL -- MDEL --	--	--	--

D. Compliance Summary

Several violations of previous Order R5-2015-0121 were observed on 2 June 2020. USBR did not maintain the inlet or bioreactor as required by Provision I.D. of the previous Order. V-Adit discharge was also held at an unpermitted holding basin, with evidence of discharge to surface water in violation of Provision III.A. of the previous Order. Since the violation occurrences, USBR has performed corrective actions to rehabilitate the inlet to bioreactor.

The MRP of previous Order R5-2015-0121 required discharge sampling and reporting for sulfate at VAD-001 and INF-001 once per year. The Discharger failed to report sulfate at VAD-001 and INF-001 on 2 separate occasions on 30 June 2016 and 28 November 2016.

E. Planned Changes

This Order requires maintenance to the existing bioreactor/infiltration gallery.

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 Plan.** 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. 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. Beneficial uses applicable to the Middle Fork American River are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Middle Fork American River	Existing: Municipal and Domestic Water Supply (MUN); Agricultural Irrigation and Stock Watering (AGR); Industrial Power Supply (POW); Contact Recreation, Canoeing and Rafting (REC-1); Other Noncontact Recreation (REC-2); Cold Freshwater Habitat (COLD); Cold Water Spawning Habitat (SPWN); and Wildlife Habitat (WILD). Potential: Warm Freshwater Habitat (WARM).

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.

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 11 October 2011 USEPA gave final approval to

California's 2008-2010 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 CFR 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 Middle Fork of the American River is not listed as a water quality limited segment.

2. **Total Maximum Daily Loads (TMDL’s).** USEPA requires the Central Valley Water Board to develop TMDL’s for each 303(d) listed pollutant and water body combination. No TMDL’s have been developed for the Middle Fork of the American River.

E. Other Plans, Polices and Regulations – Not Applicable

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 (MCLs)" 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 MCLs. 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 bypasses or overflow of untreated wastewater, except under the conditions at CFR section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define

“bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (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.
4. **Prohibition III.E (Average Dry Weather Flow).** The existing bioreactor/infiltration gallery was designed to provide treatment for up to a design flow of 0.194 million gallons per day (mgd). Therefore, this Order contains a discharge prohibition for facility design flow of 0.194 mgd for the existing bioreactor/infiltration gallery.

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.

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 (ELGs) representing application of BPT, BAT, BCT, and NSPS. 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 ELGs 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. No technology-based effluent limitations are applicable to this Facility.

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 CFR 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 2016 through September 2020, which includes influent, V-Adit, and ambient background data submitted in the Report of Waste Discharge. No flows were observed from the Bioreactor’s effluent during sampling times; therefore, no effluent characterization samples were collected. Since the influent data best represented the discharge prior to being discharged to the American River, particularly in times of high flows from the V-Adit that bypass the bioreactor and directly discharge to the river, the influent data was used to conduct the RPA.

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

- i. 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 TMDLs, 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 thorough 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.”

ii. **Dilution/Mixing Zone Study Results**

River Flow.

Flow in the Middle Fork American River is controlled by releases from Hell Hole Reservoir upstream of Sliger Mine. This Reservoir is managed by the Placer County Water Agency (PCWA) and is used to generate electricity. PCWA is required to maintain a minimum in-stream flow of 75 cfs at the Oxbow Powerhouse gauging station, several miles upstream from Sliger Mine.

V-Adit Flow.

The Discharger defines the site-specific wet season as 1 December through 31 May of each year and the site-specific dry season as 1 June through 30 November of each year. The wet season time frame is based on the fact that the V-Adit flows are dependent on groundwater levels in the vicinity of the V-Adit. The hydraulic conditions in the groundwater level near the V-Adit lag behind annual precipitation events because water must accumulate in the groundwater channels before the levels are high enough to affect the flows from the V-Adit. Central Valley Water Board staff has determined that the Discharger’s estimation of a site-specific wet season lasting from 1 December to 31 May of each year is appropriate. The maximum flow from the V-Adit has been estimated by the Discharger to be approximately 0.3 cfs.

Dye studies performed in October 2005 and September 2006.

In October 2005, flows in both the receiving water and V-Adit drainage were low due to the seasonal dry period. V-Adit drainage was flowing overland into the Middle Fork American River. Field measurements of electrical conductivity (EC) were collected within and around the mixing zone during the dye study; and samples were collected for analysis of boron and arsenic concentrations. Boron and arsenic concentrations showed similar patterns to that of the EC measurements. The amount of dilution within the mixing zone (evaluated as percent receiving water) based on boron (87 to 92%), arsenic (82 to 98%), and EC (84 to 88%) were similar. In September 2006, flow from the V-Adit drainage did not discharge directly to the River. V-Adit drainage was routed to the receiving water through a temporary pipe to allow the study to be conducted. Field measurements of EC and dye were collected to quantify the dilution within and around the mixing zone. The amount of dilution within the mixing zone (evaluated as percent receiving water) based on EC and dye concentration measurements ranged from 4.5% to 95%.

Mixing Zone calculated by Discharger.

The Discharger originally requested consideration for a mixing zone for discharges from the Facility in a submittal dated 22 December 2006. The submittal also outlined several treatment alternatives for the Facility. The request was based on applying dilution in lieu of other alternatives to control or treat the effluent from the Facility. The Regional Water Board denied this request and required that treatment of the Facility's discharge was necessary if a mixing zone was to be granted. In March 2008 the Discharger installed a passive treatment system, the current bioreactor, thereby satisfying the Board's requirement for treatment prior to allowing a mixing zone. The Discharger brought the treatment system online on 22 March 2008.

Subsequently, the Discharger requested that a mixing zone be allowed and dilution credits be applied to the discharge. The mixing zone and dilution credits are intended to account for events when stormwater inundates the bioreactor causing a portion of the V-Adit drainage to bypass the treatment system. The Discharger requested that the mixing zone and dilution credits apply year-round to account for such individual events that are unpredictable.

Based on the dye studies and the associated sampling, the Discharger concluded that the mixing zone extends from the point of discharge upstream for 25 feet and away from shore for 5 feet. The dye studies also concluded that the proposed mixing zone is incompletely mixed, meaning there is potential for significant variation in the concentration of constituents within the mixing zone.

The maximum concentration of arsenic within the mixing zone during the October 2005 dye study was 8.5 µg/L, which is well below the CTR freshwater aquatic life acute criterion (340 µg/L) and chronic criterion (150 µg/L). The maximum concentration of boron within the mixing zone during the October 2005 study was 34 µg/L, which is below the recommended lowest observed toxicity effect level for boron of 1,000 µg/L. The maximum level of EC within the mixing zone during the October 2005 study was 173 µmhos/cm, which is below the lowest associated water quality objective of 700 µmhos/cm. In addition, the lowest acute toxicity measurement of pure effluent in the data reviewed for this Order was 95 % survival, indicating that the discharge does not exhibit acutely toxic properties. These data show that the mixing zone meets the SIP requirements 1 through 5 listed above. Observations and photos from the Discharger show that the mixing zone meets SIP requirements 6 through 9.

Finally, there are no other mixing zones in the vicinity of the discharge, the discharge flow is significantly smaller than the receiving water flow,

and the nearest drinking water intake is more than 7 miles downstream of the discharge. Therefore, the Central Valley Water Board concluded that the mixing zone requested by the Discharger is protective of the beneficial uses and applicable water quality objectives for the American River. Because the Discharger did not specify the vertical characteristics of the mixing zone, and the receiving water is relatively shallow in the vicinity of the discharge, the mixing zone was assumed to extend from the surface to bottom of the receiving water throughout the entire 25 foot by 5 foot area.

- iii. **Evaluation of Available Dilution for Human Health, and Acute and Chronic Aquatic Life Criteria (Arsenic, Copper, Lead, Chromium, and Nickel).** The SIP requires a mixing zone must be as small as practicable and comply with eleven (11) prohibitions under section 1.4.2.2.A. Based on Central Valley Water Board staff evaluation, the mixing zone extends from the point of discharge upstream for 25 feet and away from shore for 5 feet and a maximum available dilution credit of 250:1 meets the eleven prohibitions of the SIP as follows:

- (1) *Shall not compromise the integrity of the entire waterbody* – The TSD states that, “*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats.*” The mixing zones are approximately 25 feet x 5 feet, which makes up a small fraction of the multi-mile length river. The mixing zones do not compromise the integrity of the entire waterbody.
- (2) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The SIP requires that the acute mixing zone be appropriately sized to prevent lethality to organisms passing through the mixing zone. U.S. EPA recommends that float times through a mixing zone less than 15 minutes ensures that there will not be lethality to passing organisms. The acute mixing zone allowed in this Order extends only from the point of discharge upstream for 25 feet and away from shore for 5 feet. The float time is very short, literally only a few seconds. In addition, this Order includes an acute toxicity effluent limitation that requires compliance to be determined based on acute bioassays using 100% effluent. Compliance with these requirements ensures that acutely toxic conditions to aquatic life passing through the acute and chronic mixing zones do not occur.
- (3) *Shall not restrict the passage of aquatic life* – The Discharger conducted a mixing zone study to evaluate the near-field effects of

the discharge. The Discharger evaluated the zone of passage around the mixing zone where water quality objectives are met. The allowed mixing zone has been established to ensure an adequate zone of passage is maintained. The mixing zone extends from the point of discharge upstream for 25 feet and away from shore for 5 feet.

- (4) *Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws* – The mixing zones will not cause acutely toxic conditions, allow an adequate zone of passage, and are sized appropriately to ensure that there will be no adverse impacts to biologically sensitive or critical habitats.
- (5-9) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – The allowance of the mixing zones will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance, because this Order includes discharge prohibitions and receiving water limitations that prevent these conditions from occurring.
- (10) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The mixing zones are small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zones do not overlap mixing zones from other outfalls. There are no outfalls or mixing zones in the vicinity of the discharge.
- (11) *Shall not be allowed at or near any drinking water intake* – The mixing zones are not near a drinking water intake.

A pollutant-by-pollutant evaluation is provided in subsection iv. below to evaluate whether the mixing zones for each pollutant are as small as practicable and comply with the State and federal antidegradation requirements.

iv. **Evaluation of Available Dilution for Specific Constituents (Pollutant-by-Pollutant Evaluation)**

When determining to allow dilution credits for a specific pollutant several factors must be considered, such as, available assimilative capacity, facility performance, and best practicable treatment or control. The receiving water contains assimilative capacity for arsenic, copper, lead, chromium, and nickel and the human health criteria, acute aquatic life criteria, and chronic aquatic life criteria mixing zones meet the mixing zone prohibitions of the SIP section 1.4.2.2.A. Section

1.4.2.2 of the SIP requires that, “A mixing zone shall be as small as practicable.”, and Section 1.4.2.2.B requires, “The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements.”

Considering existing Facility performance and the factors in section 1.4.2.2.A of the SIP, the granted dilution credits have been reduced from than the maximum allowed dilution credit for arsenic, copper, lead, chromium, and nickel. Table F-4 identifies the mixing zones for these parameters that are as small as practicable for this Facility and that fully comply with the SIP.

The allowance of a mixing zone and dilution credits are a discretionary act by the Central Valley Water Board. The mixing zone and dilution credits for arsenic, copper, lead, chromium, and nickel permitted in this Order will result in a minor increase in the discharge. According to U.S. EPA’s memorandum on Tier 2 Antidegradation Reviews and Significance Thresholds, any individual decision to lower water quality for nonbioaccumulative chemicals that is limited to 10 percent of the available assimilative capacity represents minimal risk to the receiving water and is fully consistent with the objectives and goals of the Clean Water Act. The percent use of available assimilative capacity is well below the Tier 2 Antidegradation Reviews and Significance Thresholds as shown in Table F-4, below. The mixing zones are as small as practicable for this Facility and the increased loading complies with the state and federal antidegradation requirements.

Based on the findings above, this Order grants mixing zones and dilution credits that have been used for the calculation of WQBELs for arsenic, copper, lead, chromium, and nickel. The dimensions of the mixing zones and allowable dilution credits are shown in Table F-4, below.

Table F-4. Mixing Zones and Dilution Credits

Parameter	Allowed Dilution Credit	Mixing Zone Size (feet)	Percent Assimilative Capacity Used
Arsenic	17	<25 x 5	< 0.1
Copper	40	<25 x 5	4.2
Chromium	90	<25 x 5	< 0.1
Nickel	3.5	<25 x 5	0.3
Lead	11	<25 x 5	< 0.1

To fully comply with all applicable laws, regulations and policies of the State, Central Valley Water Board approved a mixing zone and the associated dilution credits shown in Table F-4 based on the following:

- i. Mixing zones are allowed under the SIP provided all elements contained in section 1.4.2.2 are met. Based on the mixing zone study conducted by the Discharger the Central Valley Water Board has determined that these factors are met.
- ii. Section 1.4.2.2. of the SIP requires mixing zones to be as small as practicable. Based on the mixing zone study conducted by the Discharger the Central Valley Water Board has determined the mixing zone is as small as practicable.
- iii. The Central Valley Water Board has determined mixing zone complies with the SIP for priority pollutants.
- iv. The mixing zone study indicates the maximum allowed dilution factor to be 250 for human health and aquatic life constituents. section 1.4.2.2B of the SIP, in part states, "The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements." The Central Valley Water Board has determined a dilution factor of 250 is not needed or necessary for the Discharger to achieve compliance with this Order.
- v. The Central Valley Water Board has determined the mixing zone complies with the Basin Plan for non-priority pollutants. The Basin Plan requires a mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board has considered the procedures and guidelines in section 5.1 of U.S. EPA's Water Quality Standards Handbook, 2nd Edition (updated July 2007) and section 2.2.2 of the TSD. The SIP incorporates the same guidelines.
- vi. The Central Valley Water Board has determined that allowing dilution factors that exceed those proposed by this Order would not comply with the State Anti-degradation Policy for receiving waters outside the allowable mixing zone for arsenic, copper, lead, chromium, and nickel. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 (State Anti-Degradation Policy). The State Anti-Degradation Policy incorporates the federal antidegradation policy and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of the State Anti-Degradation Policy states:

“Any activity which produces or may produce a waste or increased volume or concentration of waste and which dischargers or proposed to discharge to existing high quality waters will be required 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.”

The effluent limitations established in the Order for arsenic, copper, lead, chromium, and nickel that have been adjusted for dilution credits provided in Table F-4 were developed based on performance of the Discharger’s current wastewater treatment capabilities. Therefore, the Central Valley Water Board determined the effluent limitations required by this Order will result in the Discharger implementing best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained. The Central Valley Water Board also determined the Discharger will be in immediate compliance with the effluent limitations.

The Central Valley Water Board also determined establishing effluent limitations for arsenic, copper, lead, chromium, and nickel that have been adjusted for dilution credits provided in Table F-4 is consistent with section 1.4.2.2B of the SIP that requires the Central Valley Water Board to shall deny or significantly limit a mixing zone and dilution credits as necessary to comply with other regulatory requirements.

- xi. Therefore, the Central Valley Water Board has determined the effluent limitations established in the Order for arsenic, copper, lead, chromium, and nickel that have been adjusted for dilution credits provided in Table F-4 are appropriate and necessary to comply with the Basin Plan, SIP, Federal anti-degradation regulations and the State Anti-Degradation Policy.
- 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.

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. 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 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 the Middle Fork American River is represented by the data in Table F-6, below, which shows ambient hardness ranging from 14 mg/L to 24 mg/L based on collected ambient data from April 2016 through September 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 14 mg/L (minimum) up to 24 mg/L (maximum). Staff

recommends that the Board use the ambient hardness values shown in Table F-6 for the following reasons.

- i. Using the ambient receiving water hardness values shown in Table F-6 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 and ratepayers 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-5 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 14 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-5 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-5. 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	24	2.2	1.7
Chromium III	24	350	41
Cadmium	24 (acute) 24 (chronic)	0.5	0.5

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total) (Acute)	CTR Criteria (µg/L, total) (Chronic)
Copper	24	2.2	1.7
Chromium III	24	350	41
Cadmium	24 (acute) 24 (chronic)	0.5	0.5
Lead	24	6.7	0.5
Nickel	24	89	9.9
Silver	24	0.14	--
Zinc	24	23	23

Table F-5 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-5 represent actual observed receiving water hardness measurements from the dataset shown in Table F-6.
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 (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). The 1Q10 and 7Q10 Middle Fork American River flows are 75 cfs and 174 cfs, respectively.

Ambient conditions

The ambient receiving water hardness varied from 14 mg/L to 24 mg/L, based on 4 samples from April 2016 through September 2020 (see Table F-8).

Table F-6. Hardness Values (as CaCO₃)

Date	Ambient Upstream	Effluent	Ambient Downstream
4/06/2016	20	128	20
2/12/2020	24	--	23
6/02/2020	19	--	--
9/08/2020	14	--	14

In this analysis, the entire range of ambient hardness concentrations shown in Table F-6 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 24 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 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.

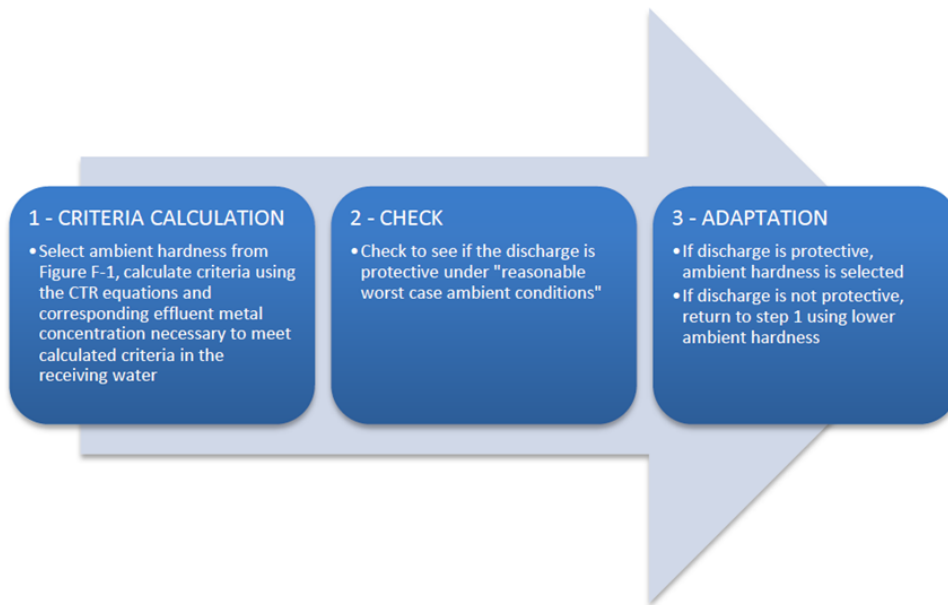
For lead this default assumption is overly conservative and was not used in the evaluation. The actual observed maximum background concentration for lead of 0.11 µg/L is significantly lower than the CTR criterion calculated using the minimum ambient hardness of 14 mg/L (0.26 µg/L). Therefore, mixed downstream lead concentrations were calculated assuming background concentrations for these pollutants are equal to the actual maximum concentration observed within the receiving water. Based on this assumption, the design CTR criteria for lead are expected to be protective under all ambient conditions.

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-1. 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 24 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with 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 Effluent Concentration Allowance (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 14 mg/L and a calculated ECA of 37.7 µg/L. Ambient concentrations for copper is 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-7 below, summarize the critical flow conditions. This Order includes average monthly and maximum daily effluent limits for copper of 31 µg/L and 62 µg/L, respectively. The effluent limits were calculated per section 1.4 of the SIP, which ensures compliance with the ECA considering effluent variability and the probability basis of each effluent limit.

Table F-7. Verification of CTR Compliance for Copper

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Copper Concentration (µg/L)	Complies with CTR?
1Q10	14.5	1.8	1.8	Yes
7Q10	14.2	1.8	1.8	Yes
Max receiving water flow	14.0	1.7	1.7	Yes

3. Determining the Need for WQBEL’s

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.

i. Aluminum

(a) **WQO.** The State Water Board Division of Drinking Water (DDW) has established Secondary Maximum Contaminant Levels (MCLs) to assist public drinking water systems in managing their drinking water for public welfare considerations, such as taste, color, and odor. The Secondary MCL for aluminum is 200 µg/L for protection of the MUN beneficial use. Title 22 requires compliance with Secondary MCLs on an annual average basis. Aluminum is the third most abundant element in the earth’s crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and dissolved organic carbon, all influence aluminum speciation and its subsequent bioavailability to

aquatic life. The 2018 U.S. EPA NAWQC for protection of freshwater aquatic life for aluminum recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (4-day average; criteria continuous concentration or CCC) standards based upon Multiple Linear Regression (MLR) models for vertebrate and invertebrate species that use pH, dissolved organic carbon (DOC), and total hardness to quantify the effects of these water chemistry parameters on the bioavailability and resultant toxicity of aluminum to aquatic organisms. The 2018 Aluminum NAWQC document provides look up tables or a Microsoft Excel spreadsheet to calculate the criteria based on pH, DOC, and total hardness. The U.S. EPA aluminum criteria have been used to implement the Basin Plan's narrative toxicity objective.

A site-specific CMC of 2,260 µg/L and CCC of 650 µg/L were calculated considering the reasonable worst-case pH, hardness, and DOC of the receiving water and effluent. Lower values for pH, hardness, and DOC result in more stringent criteria. Therefore, in this case, considering sampling results from April 2016 and September 2020, the lowest measured pH and hardness for the effluent and receiving water were used to calculate criteria. In the absence of DOC data, the criteria were calculated considering a conservative assumption of DOC for the receiving water and effluent of 1 mg/L and 5 mg/L, respectively.

- (b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Aluminum is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations and requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, for the Secondary MCL the RPA was conducted based on the calendar annual average effluent aluminum concentrations. Calculating a maximum annual average concentration considers variability in the data, per 40 C.F.R. § 122.44(d)(1)(ii).

For the NAWQC the RPA was conducted considering the maximum annual average effluent concentration for aluminum, which was 635 µg/L based on eight samples collected between April 2016 and September 2020. Effluent aluminum is consistently less than the concentrations in the receiving water and below the NAWQC. Since aluminum is not a CTR parameter, reasonable potential was determined using US EPA TSD method by calculating the downstream distance. Using the US EPA approach, a maximum concentration of 635 µg/L was observed, which is below the NAWQC. Therefore, the Central Valley Water Board has determined that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

ii. **Mercury**

- (a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "...more stringent mercury limits may be determined and implemented through use of the State's narrative criterion." In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

The State Water Board adopted Resolution 2017-0027 on 2 May 2017, which approved Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions (Statewide Mercury Provisions). The Statewide Mercury Provisions establish a Sport Fish Water Quality Objective of an average 0.2 mg/kg methylmercury fish tissue concentration within a calendar year for waters with the beneficial uses of commercial and sport fishing (COMM), tribal tradition and culture (CUL), wildlife habitat (WILD), and marine habitat (MAR). This fish tissue objective corresponds to a water column concentration of 12 ng/L of total mercury for flowing water bodies (e.g., rivers, creeks, streams, and waters with tidal mixing) therefore, the Sport Fish Water Quality Objective is applicable and is the most stringent objective.

- (a) **RPA Results.** From monitoring data collected by the Discharger between 2016 and 2020, the MEC for mercury was 10 ng/L, which does not exceed the CTR human health criterion or the Statewide Mercury Provisions. Therefore, mercury in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion, and effluent limitations for mercury have not been established in this Order.

If mercury is found to be causing toxicity based on chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to an NPDES permit, then this Order may be reopened to reevaluate need for interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger. (See the reopener provision in section VI.C.1 of the Limitations and Discharge Requirements section of this Order.)

iii. **Iron**

- (a) **WQO.** The DDWP has adopted a Secondary Maximum Contaminant Level (MCL) – Consumer Acceptance Limit for iron of 300 µg/L, which is used to implement the Basin Plan’s chemical constituent objective for the protection of the municipal and domestic supply beneficial use.
- (b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Iron is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL’s are drinking water standards contained in Title 22 of the California Code of Regulations and requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, for the Secondary MCL the RPA was conducted based on the calendar annual average effluent aluminum concentrations. Calculating a maximum annual average concentration considers variability in the data, per 40 C.F.R. § 122.44(d)(1)(ii).

The RPA was conducted considering the maximum annual average effluent concentration for iron, which was 2009 µg/L based on eight samples collected between April 2016 and September 2020. Effluent iron is consistently less than the concentrations in the receiving water. Since iron is not a CTR parameter, reasonable potential was determined using US EPA TSD method by calculating the downstream distance. Using the US EPA approach, a maximum concentration of 201 µg/L was observed, which is below the Secondary MCL. Therefore, the Central Valley Water Board has determined that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL.

iv. **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-8, below, contains various recommended levels for EC or TDS, sulfate, and chloride.

Table F-8. Salinity Water Quality Criteria/Objectives

Parameters	Basin Plan Objective	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)	TDS 125	EC 900 or TDS 500	EC 1,600 or TDS 1,000	EC 2,200 or TDS 1,500	N/A	EC 1099	EC 1214

Parameters	Basin Plan Objective	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
Sulfate (mg/L)	N/A	250	500	600	N/A	53	70
Chloride (mg/L)	N/A	250	500	600	860 1-hour / 230 4-day	166	263

Table F-8 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 MCLs.** Secondary MCLs 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, 1600 µmhos/cm as an upper level, and 2200 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. The Basin Plan also contains a Total Dissolved Solids (TDS) Water Quality Objective for the Middle Fork of the American River; TDS shall not exceed 125 mg/L (90 percentile).
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.** Chloride concentrations in the effluent ranged from 11.4 mg/L to 263 mg/L, with an average of 166 mg/L. These levels do not exceed the Secondary MCL upper level. Background concentrations in Receiving Water

ranged from 0.59 mg/L to 2.06 mg/L, with an average of 1.54 mg/L, for eleven samples collected by the Discharger from April 2016 through September 2020.

- (2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's monitoring reports shows an average effluent EC of 1099 $\mu\text{mhos/cm}$, with a range from 416 $\mu\text{mhos/cm}$ to 1065 $\mu\text{mhos/cm}$. These levels do not exceed the Secondary MCL. The background receiving water EC averaged 45 $\mu\text{mhos/cm}$. The average effluent TDS concentration was not available from samples collected between 2016 and 2020. The background receiving water TDS ranged from 20 mg/L to 45 mg/L, with an average of 33 mg/L. These levels do not exceed the Secondary MCL and the Basin Plan site-specific TDS limit of 125 mg/L.
- (3) **Sulfate.** Sulfate concentrations in the effluent ranged from 32 mg/L to 57 mg/L, with an average of 40 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in receiving water ranged from 0.94 mg/L to 2.84 mg/L, with an average of 1.85 mg/L.

(c) **WQBEL's.**

As discussed above, the discharge does not have reasonable potential to cause or contribute to an in-stream 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 trigger of 1,300 $\mu\text{mhos/cm}$ for EC to be applied as a calendar annual average to limit the discharge to current levels.

This performance-based trigger is based on the maximum annual average effluent EC concentration for a calendar year using data from April 2016 through September 2020, adjusted to account for possible drought, water conservation, and water recycling efforts.

Furthermore, in order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to develop and implement a Salinity Evaluation and Minimization Plan.

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 trigger for EC in this Order is consistent with the Alternative Salinity Permitting Approach and compliance with the trigger 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.

- (d) **Plant Performance and Attainability.** Analysis of effluent EC data shows that immediate compliance with the performance-based trigger for EC is feasible.
- 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 arsenic, copper, lead, chromium, 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. **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.

(b) **RPA Results.** From monitoring data collected by the Discharger between 2016 and 2020, eight samples were analyzed for total arsenic. The maximum effluent concentration (MEC) for arsenic was 72.8 µg/L while the maximum observed upstream receiving water concentration was 2.0 µg/L and the maximum downstream receiving water concentration was ND with a maximum reporting level of 2.0 µg/L. The MEC exceeded the primary MCL, therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL. Therefore, this Order contains water quality based effluent limitations for arsenic based on the primary MCL.

(c) **WQBEL's.** Order R5-2015-0121, contained arsenic effluent limitations of 130 µg/L as a monthly average and a maximum daily effluent limit of 220 µg/L based on the flow and dilution credit of 13.0.

Effluent limitations for arsenic were calculated based on the year-round dilution available in the Middle Fork American River. The full dilution credit based on the minimum flow in the river and maximum flow from the V-Adit was 250:1. However, effluent limitations based on this dilution credit are excessive. Therefore, final performance based effluent limitations for arsenic were calculated based on the mean plus 3.3 standard deviations of the mean, which results in an AMEL of 140 µg/L. The MDEL was calculated as AMEL x (Multiplier from Table 2 of the SIP), which results in an MDEL of 280 µg/L.

Dilution credits were calculated to be 17 for the AMEL and MDEL. Well below the flow-based dilution credit of 250.

(d) **Discharge Treatment System Performance and Attainability.** Analysis of the effluent data shows that the MEC of 72.8 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. Copper

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA 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 copper. The CTR includes hardness-dependent criteria for copper for the receiving water. The maximum observed upstream receiving water concentration was 0.8 µg/L based on eleven samples collected between 2016 and 2020. The maximum observed effluent concentration was 16.2 µg/L, based on eight samples collected between 2016 and 2020. The RPA was conducted using the lowest observed upstream receiving water hardness of 14 mg/L to calculate the criteria for comparison to the maximum effluent concentration. The table below shows the specific criteria calculated for the RPA.

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Y/N)
Receiving Water	1.7µg/L	0.8 µg/L	No
Effluent	2.8 µg/L	16.2 µg/L	Yes

Table Notes:

- Receiving Water.** The CTR Chronic Criterion (Total) for the receiving water is based on lowest observed upstream hardness of 14 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
- Effluent.** The CTR Chronic Criterion (Total) for the effluent is based on reasonable worst-case downstream hardness of 24 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Based on the available data, copper in the effluent discharge has reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. Therefore, this Order contains water quality based effluent limitations for copper based on the CTR criteria.

- (c) **WQBEL's.** Effluent limitations for copper were calculated based on year-round dilution is available in the Middle Fork American River. The full dilution credit based on the minimum flow in the river and maximum flow from the V-Adit was 250:1. However, effluent limitations based on this dilution credit are excessive. Therefore, final performance based effluent limitations for copper were calculated. The AMEL was calculated as 3.11 x (MEC) or 31 µg/L and the MDEL was calculated as the AMEL x (Multiplier from Table 2 of the SIP) or 62 µg/L.

Dilution credits were calculated to be 40 for the AMEL and MDEL. Well below the flow-based dilution credit of 250.

- (d) **Discharge Treatment System Performance and Attainability.** Analysis of the effluent data shows that the MEC of 16.2 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Lead**

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA 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 lead. The CTR includes hardness-dependent criteria for lead for the receiving water. The maximum observed upstream receiving water concentration was 0.07 µg/L based on nine samples collected between 2016 and 2020. The maximum observed effluent concentration was 6.2 µg/L, based on eight samples collected between 2016 and 2020. The RPA was conducted using the lowest observed upstream receiving water hardness of 14 mg/L to calculate the criteria for comparison to the maximum effluent concentration. The table below shows the specific criteria calculated for the RPA.

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Y/N)
Receiving Water	0.3 µg/L	0.07µg/L	No
Effluent	0.5 µg/L	6.2µg/L	Yes

Table Notes:

1. **Receiving Water.** The CTR Chronic Criterion (Total) for the receiving water is based on lowest observed upstream hardness of 14 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 24 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Based on the available data, lead in the effluent discharge has reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. Therefore, this Order contains water quality based effluent limitations for lead based on the CTR criteria.

- (c) **WQBEL's.** Effluent limitations for lead were calculated based year-round dilution is available in the Middle Fork American River. The full dilution credit based on the minimum flow in the river and maximum flow from the V-Adit was 250:1. However, effluent limitations based on this dilution credit are excessive. Therefore, final performance based effluent limitations for lead were calculated. The AMEL was calculated as 3.11 x (MEC) or 11 µg/L and the MDEL was calculated as the AMEL x (Multiplier from Table 2 of the SIP) or 22 µg/L.

Dilution credits were calculated to be 90 for the AMEL and MDEL. Well below the flow-based dilution credit of 250.

- (d) **Discharge Treatment System Performance and Attainability.** Analysis of the effluent data shows that the MEC of 6.2 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. Chromium

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for chromium. These criteria for chromium are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA 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 chromium. The CTR includes hardness-dependent criteria for chromium for the receiving water. The maximum observed upstream receiving water concentration was 0.1 µg/L based on eleven samples collected between 2016 and 2020. The maximum observed effluent concentration was 76.7 µg/L, based on eight samples collected between 2016 and

2020. The RPA was conducted using the lowest observed upstream receiving water hardness of 14 mg/L to calculate the criteria for comparison to the maximum effluent concentration. The table below shows the specific criteria calculated for the RPA.

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Y/N)
Receiving Water	41.4 µg/L	0.1 µg/L	No
Effluent	64.3 µg/L	76.7 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 14 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 24 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Based on the available data, chromium in the effluent discharge has reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. Therefore, this Order contains water quality based effluent limitations for chromium based on the CTR criteria.

- (c) **WQBEL's.** Effluent limitations for chromium were calculated based year-round dilution is available in the Middle Fork American River. The full dilution credit based on the minimum flow in the river and maximum flow from the V-Adit was 250:1. However, effluent limitations based on this dilution credit are excessive. Therefore, final performance based effluent limitations for chromium were calculated. The AMEL was calculated as 3.11 x (MEC) or 150 µg/L and the MDEL was calculated as the AMEL x (Multiplier from Table 2 of the SIP) or 290 µg/L.

Dilution credits were calculated to be 3.3 for the AMEL and MDEL. Well below the flow-based dilution credit of 250.

- (d) **Discharge Treatment System Performance and Attainability.** Analysis of the effluent data shows that the MEC of 76.7 µg/L is less than the applicable WQBEL's. The Central

Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **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. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA translators were used for the receiving water and effluent. The CTR water quality based limitations are more stringent than the ELG technology-based limitations.
- (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 concentration was 0.3 µg/L based on eleven samples collected between 2016 and 2020. The maximum observed effluent concentration was 48.3 µg/L, based on eight samples collected between 2016 and 2020. The RPA was conducted using the lowest observed upstream receiving water hardness of 14 mg/L to calculate the criteria for comparison to the maximum effluent concentration. The table below shows the specific criteria calculated for the RPA.

Water Type	CTR Chronic Criterion (Total)	Maximum Concentration (Total)	Reasonable Potential? (Y/N)
Receiving Water	9.9 µg/L	0.1 µg/L	No
Effluent	15.6 µg/L	48.3 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 14 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 24 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 effluent discharge has reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. Therefore, this Order contains water quality based effluent limitations for nickel based on the CTR criteria.

- (c) **WQBEL's.** Effluent limitations for nickel were calculated based year-round dilution is available in the Middle Fork American River. The full dilution credit based on the minimum flow in the river and maximum flow from the V-Adit was 250:1. However, effluent limitations based on this dilution credit are excessive. Therefore, final performance based effluent limitations for nickel were calculated. The AMEL was calculated as $3.11 \times (\text{MEC})$ or $92 \mu\text{g/L}$ and the MDEL was calculated as the AMEL \times (Multiplier from Table 2 of the SIP) or $180 \mu\text{g/L}$.

Dilution credits were calculated to be 11 for the AMEL and MDEL. Well below the flow-based dilution credit of 250.

- (d) **Discharge Treatment System Performance and Attainability.** Analysis of the effluent data shows that the MEC of $48.3 \mu\text{g/L}$ is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **pH**

- (a) **WQO.** 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 7.4 to 8.5 while the upstream receiving water pH ranged from 7.0 to 8.6. The pH in the discharge does not exceed the Basin Plan water quality objective, however, the effluent pH appears to exceed the receiving water pH.
- (c) **WQBEL's.** Order R5-2015-0121, contained year-round effluent limitations for pH based on the Basin Plan; an Instantaneous Minimum of 6.5 and an Instantaneous Maximum of 8.5. This Order retains the year-round pH limitations based on the Basin Plan.
- (d) **Plant Performance and Attainability.** Based on the sample results, it appears that the discharge will comply with the final effluent limitations for pH.

4. WQBEL Calculations

- a. This Order includes WQBEL's for arsenic, copper, lead, chromium, nickel and pH. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.5.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:

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

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 MCLs.** 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. LTAacute and LTAchronic) 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 No. 001**

Table F-9. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitations	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total	µg/L	140	280	--	--
Copper, Total	µg/L	31	62	--	--
Lead, Total	µg/L	11	22	--	--
Chromium, Total	µg/L	150	290	--	--
Nickel, Total	µg/L	92	180	--	--
pH	pH units	--	--	6.5	8.5

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 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 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 III-8.00.) 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. USEPA'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.

USEPA 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.

Section B.2. "Toxicity Requirements" (pgs. 14-15) 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:

Minimum for any one bioassay.....	70%
Median for any three consecutive bioassays.....	90%

- b. **Chronic 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 III-8.00.) 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.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring once during the permit term for demonstration of compliance with the narrative toxicity objective. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region (In the Matter of the Review of Own Motion of Waste Discharge Requirements Orders R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES No. CA0055119] and Time Schedule Orders R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)) that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, “In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.” The process to

revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

D. Final Effluent Limitation Considerations

- 1. Mass-based Effluent Limitations – Not Applicable**
- 2. Averaging Periods for Effluent Limitations – Not Applicable**
- 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 total dissolved solids, chloride, electrical conductivity, copper, lead, and flow. The effluent limitations for these pollutants are less stringent than those in Order R5-2015-0121. This relaxation 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.

The Middle Fork American River is considered an attainment water for total dissolved solids, chloride, electrical conductivity, copper, lead 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 total dissolved solids, chloride, electrical conductivity, copper, and lead from Order R5-2015-0121 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 R5-2015-0121 was issued indicates that total dissolved solids, chloride, and electrical conductivity do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Additionally, less stringent effluent limitations may apply for copper and lead based on the dilution credits that satisfy requirements in CWA section 402(o)(2). The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

- i. **Copper and Lead.** Based on dilution/mixing zone studies conducted in October 2005 and September 2006 a mixing zone and dilution credit of 250:1 is applicable and the receiving water contains assimilative

capacity for copper and lead, as discussed in section IV.C.2.c of this Fact Sheet. Therefore, this Order includes less stringent effluent limitations for copper and lead based on the performance of the Facility and the available dilution. Based on new information that was not available for previous Order R5-2015-0121, new effluent limitations were calculated in accordance with antibacksliding requirements.

- ii. **Total Dissolved Solids.** Effluent monitoring data collected between April 2016 and September 2020 indicates that total dissolved solids in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.
- iii. **Electrical Conductivity.** Effluent monitoring data collected between April 2016 and September 2020 indicates that electrical conductivity in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.
- iv. **Chloride.** Effluent monitoring data collected between April 2016 and September 2020 indicates that chloride 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 copper, lead, total dissolved solids, chloride, and electrical conductivity from Order R5-2015-0121 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 R5-2015-0121 included flow as an effluent limit at Discharge Point 001 based on the Facility flow. In accordance with Order R5-2015-0121, 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.

4. Antidegradation Policies

The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. This Order provides for an increase in the volume and mass of pollutants discharged. The increase will not have significant impacts on aquatic life, which is the beneficial use most likely affected by the pollutants discharged. The increase will not cause a violation of water quality objectives. Any change in water quality that is expected to occur as a result of the issuance of this order will be consistent

with the maximum benefit to the people of the state and will not unreasonably affect present and anticipated beneficial uses. Furthermore, compliance with these requirements in this order will result in the use of best practicable treatment or control of the discharge.

This Order relaxes the effluent limitations for copper and lead based on the allowance of mixing zones in accordance with the Basin Plan, the SIP, U.S. EPA's Water Quality Standards Handbook, 2nd Edition (updated July 2007), and the TSD. As discussed in section IV.C.2.c of this Fact Sheet, the mixing zones comply with applicable provisions of both the state and federal antidegradation policies.

Furthermore, the allowance of a mixing zone for these pollutants will result in a minor increase in the discharge, resulting in less than 10 percent of the available assimilative capacity in the receiving water. According to U.S. EPA's memorandum on Tier 2 Antidegradation Reviews and Significance Thresholds, any individual decision to lower water quality for non-bioaccumulative chemicals that is limited to 10 percent of the available assimilative capacity represents minimal risk to the receiving water and is fully consistent with the objectives and goals of the Clean Water Act.

- a. **Surface Water.** The permitted surface water 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.

5. Stringency of Requirements for Individual Pollutants

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-10. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis
Arsenic, Total	µg/L	AMEL 140 MDEL 280	PBDC; and PP
Copper, Total	µg/L	AMEL 31 MDEL 62	PBDC
Lead, Total	µg/L	AMEL 11 AWEL 22	PBDC
Chromium, Total	µg/L	AMEL 150 AWEL 290	PBDC
Nickel, Total	µg/L	AMEL 92 AWEL 180	PBDC
pH	pH units	Instantaneous Max 8.5 Instantaneous Min 6.5	BP

Table F-10 Notes:

BP – Based on water quality objectives contained in the Basin Plan.
 PBDC – Based on facility performance with dilution credit.
 PP – Based on the previous permit.

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 biostimulatory substances, color, chemical constituents, dissolved

oxygen, floating material, pH, suspended sediment, settleable substances, suspended material, tastes and odors, TDS, 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. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **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/)

- c. **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 copper and lead. 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.

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 page III-8.) 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 for demonstration of compliance with the narrative toxicity objective. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where $TUc = 100/NOEC$) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for*

Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, “EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.” Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

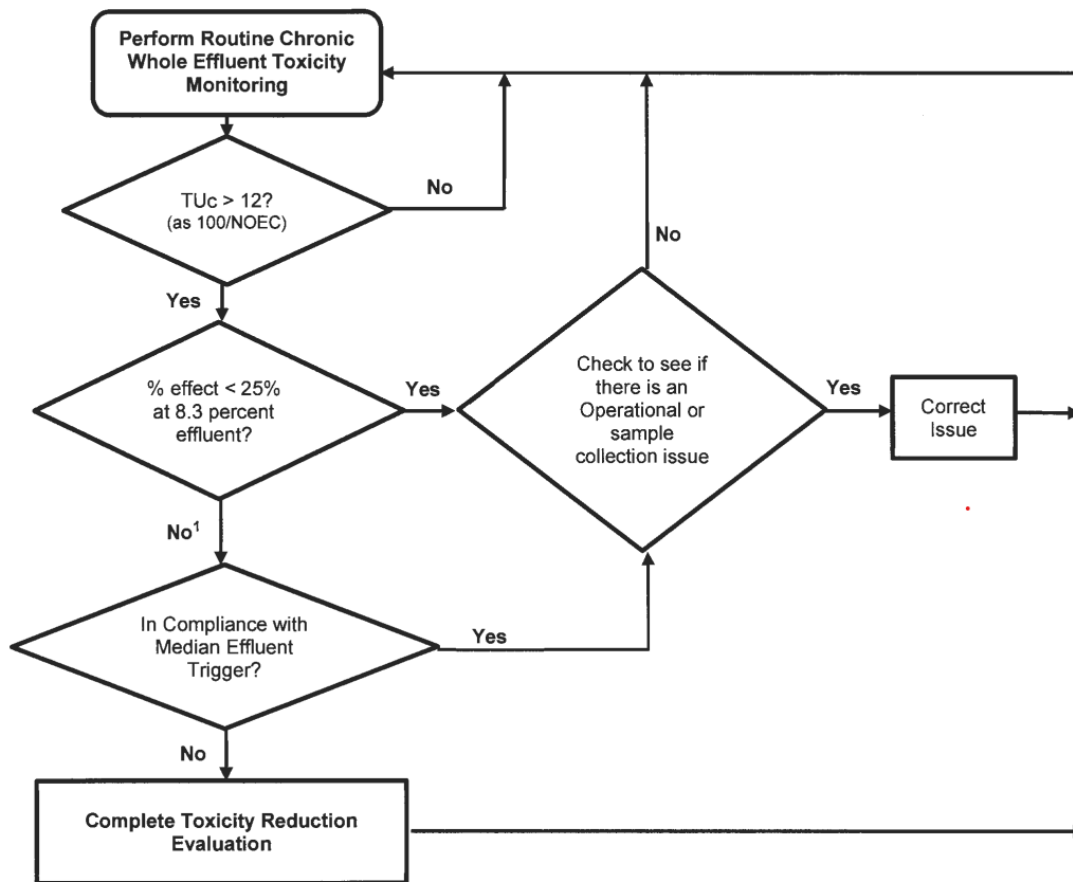
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance.

- i. Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- ii. Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- iii. Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- iv. Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- v. Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- vi. Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.
- vii. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.

- viii. 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.
- ix. Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

Figure F-2. WET Accelerated Monitoring Flow Chart



¹ 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.

- b. **Liquid Mining Waste Discharge Characterization.** Monitoring locations VAD-001 and INF-001 are described in the Monitoring and Reporting Program, Attachment E, Table E-1. The character of the liquid mining waste will be different at VAD-001 (V-Adit) than at INF-001 because, the discharge from the V-Adit travels overland for approximately 1/3 mile to the treatment system/infiltration gallery. During the overland travel, the factors affecting the discharge are not known but could include infiltration, exfiltration, storm flows, and pH changes. The Discharger shall

characterize the liquid mining waste discharge quarterly for two years at VAD-001 and at INF-001 as described in Table E-5 of the MRP (Attachment E).

3. Best Management Practices and Pollution Prevention

- a. **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 Middle Fork of American River.

4. Construction, Operation, and Maintenance Specifications

- a. **Treatment System/Infiltration Gallery Operation and Maintenance Specifications.** The treatment system/infiltration gallery must be operated in accordance with an operations and maintenance plan that assures continued optimal operation of the treatment system/infiltration gallery.
- i. The Discharger shall conduct quarterly inspections of the existing and any new units of the treatment system/infiltration gallery to make observations, statements, take photographs, and maintain the treatment system/infiltration gallery, piping, and flow structures as follows:
- a. Visual inspection of the treatment system/infiltration gallery berms and levees, influent, and effluent, flow/no flow to the river;
 - b. Statement by inspecting staff regarding condition of berms, levees, and other components of the treatment system/infiltration gallery;
 - c. Statement by inspecting staff that there is or is not flow to the River from the V-Adit;
 - d. Statement by inspecting staff that there is or is not flow to the River from the treatment system/infiltration gallery;
 - e. Include any documentation (e.g. photographs) of the treatment system/infiltration gallery and/or of unsafe conditions that prevent quarterly sampling; and
 - f. Address any corrective actions that require future activity at the treatment system/infiltration gallery with a schedule for conducting the repairs.
- ii. The Discharger shall report the observations, statements, and maintenance needs in an addendum to the quarterly SMR, with a schedule for completion of any repairs.

iii. The Discharger shall submit an operations and maintenance plan for the existing treatment system/infiltration gallery.

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

6. 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

1. Influent monitoring is required to collect data on the flow characteristics of the wastewater entering the treatment system and/or being discharged to the Middle Fork American River.

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 frequencies and sample types for arsenic (quarterly), copper (quarterly), and lead (quarterly) monitoring have been retained from Order No. R5-2015-0121 to determine compliance with effluent limitations for these parameters.
3. This Order includes a requirement for effluent monitoring of chromium (quarterly) and nickel (quarterly) to determine compliance with effluent limitations for these parameters.
4. This Order maintains a requirement for effluent monitoring of flow (quarterly), electrical conductivity (quarterly), hardness (quarterly), pH (quarterly) and temperature (quarterly) to determine the effectiveness of the treatment system and protection of the receiving water quality.

5. Monitoring data collected over the previous permit term for iron, total dissolved solids, and chloride did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2015-0121.
6. 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).
7. 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. The holding time requirements are 15 minutes for dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. section 136.3(e), Table II)

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity with an operational treatment system. See Monitoring and Reporting Program Attachment E, section V for complete instructions on conducting Acute Toxicity Testing.
2. **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 with an operational treatment system. See Monitoring and Reporting Program Attachment E, section V for complete instructions on conducting Chronic Toxicity Testing.

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.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Effluent and Receiving Water Priority Pollutant Scans

Effluent (influent if effluent has not discharged) and upstream receiving water samples must be sampled for Priority Pollutant analysis as described in the Monitoring and Reporting Program Attachment E, section IX.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for Sliger 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 posting on the Central Valley Water Board's website on 10 December 2021 and through posting by the Discharger at the Auburn City Hall and the Facility entrance on 20 December 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 **7 January 2022**.

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: **XX February 2022**

Time: **8:30 a.m.**

Location: Online

OR

Regional Water Quality Control Board, Central Valley Region

11020 Sun Center Dr., Suite #200

Rancho Cordova, CA 95670

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 Will Chen at (916) 464-4713, or will.chen@waterboards.ca.gov.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum	µg/L	635	28	650	2,260	650	--	--	--	--	No
Arsenic	µg/L	72.8	ND	10	--	--	--	--	--	10	Yes
Cadmium	µg/L	ND	ND	0.9	0.9	3.0	--	--	--	--	No
Chloride	mg/L	263	2.1	500	--	--	--	--	--	500	No
Chromium III	µg/L	76.7	1.3	41.4	347	41.4	--	--	--	--	Yes
Copper	µg/L	16.2	0.8	1.7	2.2	1.7	--	--	--	--	Yes
EC	µmhos/cm	1214	56	1600	--	--	--	--	--	1600	No
Iron	µg/L	201	194	300	--	--	--	--	--	300	No
Lead	µg/L	6.2	0.07	0.3	6.7	0.3	--	--	--	--	Yes
Mercury	ng/L	10	--	770	--	770	--	--	--	--	No
Nickel	µg/L	48.3	ND	9.9	89	9.9	--	--	--	--	Yes
Silver	µg/L	ND	ND	0.1	--	0.3	--	--	--	--	No
Zinc	µg/L	23.2	1.7	35.8	35.8	35.8	--	--	--	--	No

General Note: All inorganic concentrations are given as a total concentration.

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

ATTACHMENT H – CALCULATION OF WQBEL’S
HUMAN HEALTH WQBEL’S CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV	CMC Dilution Factor	CCC Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL
Arsenic	µg/L	10	ND	0.6	1.0	17.0	2.0	1.55	140	280

Abbreviations used in this table:

- CV = Coefficient of Variation
- MDEL = Maximum Daily Effluent Limitation
- AMEL = Average Monthly Effluent Limitation
- MDEL = Maximum Daily Effluent Limitation
- AYEL = Average Yearly Effluent Limitation

**ATTACHMENT H – CALCULATION OF WQBEL’S
 AQUATIC LIFE WQBEL’S CALCULATIONS**

Parameter	Units	CMC Criteria	CCC Criteria	B	Effluent CV	CMC Dilution Factor	CCC Dilution Factor	ECA Multiplier _{acute}	LTA _{acute}	ECA Multiplier _{chronic}	LTA _{chronic}	AMEL Multiplier ₉₅	AWEL Multiplier	MDEL Multiplier ₉₉	AMEL	AWEL	MDEL
Copper	µg/L	2.2	1.7	0.8	0.6	43	40	0.32	20	0.53	20	1.55	--	3.11	31	--	62
Lead	µg/L	6.7	0.3	0.11 3	0.6	2.4	90	0.32	7.2	0.53	7.1	1.55	--	3.11	11	--	22
Chromium	µg/L	347	41.4	0.07	0.6	--	3.5	0.32	111	0.53	94	1.55	--	3.11	150	--	290
Nickel	µg/L	88.9	9.9	0.32	0.6	1.1	11	0.32	60	0.53	60	1.55	--	3.11	92	--	180

Abbreviations used in this table:

- 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)
- ECA = Effluent Concentration Allowance
- LTA = Aquatic Life Calculations – Long-Term Average
- MDEL = Maximum Daily Effluent Limitation
- AMEL = Average Monthly Effluent Limitation

Table Notes:

1. Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.
2. AMELs are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.
3. AWELs are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.
4. MDELs are calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.