

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

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**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0084255
ORDER R5-2021-0006**

**WASTE DISCHARGE REQUIREMENTS FOR THE
LINCOLN CENTER ENVIRONMENTAL REMEDIATION TRUST
GROUNDWATER TREATMENT SYSTEM
SAN JOAQUIN COUNTY**

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

Table 1. Discharger Information

Discharger:	Lincoln Center Environmental Remediation Trust
Name of Facility:	Groundwater Treatment System
Facility Street Address:	6471 Pacific Avenue
Facility City, State, Zip:	Stockton, CA 95207
Facility County:	San Joaquin County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Groundwater	38° 0' 0.89"	121° 19' 54.1"	Fourteen Mile Slough

Table 3. Administrative Information

This Order was Adopted on:	18 February 2021
This Order shall become effective on:	1 April 2021
This Order shall expire on:	31 March 2026
The Discharger shall file a Report of Waste Discharge (ROWD) as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a NPDES permit no later than:	31 March 2025
The United States Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor

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 **18 February 2021**.

PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the Lincoln Center Environmental Remediation Trust, Groundwater Treatment System (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 or 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 (MRP) establishes monitoring and reporting requirements to implement federal and state requirements. The MRP 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 R5-2016-0002 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for violations of the previous 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 bypass 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 (CCR), title 22, section 66261.1 et seq., is prohibited.
- E. **Average Daily Discharge Flow.** Discharges exceeding an average daily discharge flow of 0.25 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 MRP, Attachment E:

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

Table 4. Effluent Limitations

Parameters	Units	Average Monthly	Maximum Daily
Arsenic, Total Recoverable	micrograms per liter (µg/L)	23	26
Barium, Total Recoverable	µg/L	415	460
Electrical Conductivity @ 25°Celsius	µmhos/cm	1,500	--
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	--	50
Volatile Organic Compounds (see table note 1. below)	µg/L	--	0.5

Table 4 Note:

- 1. Includes all volatile organic compounds (VOC’s) identified as constituents of concern in the influent groundwater, including benzene, 1,1-dichloroethylene, 1,2-dichloroethane, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.
 - 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 (WET).** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. 70 percent, minimum for any one bioassay; and

- ii. 90 percent, median for any three consecutive bioassays.
- d. **Diazinon and Chlorpyrifos.** Effluent diazinon and chlorpyrifos concentrations shall not exceed the sum of one (1.0) as identified below:

- i. Average Monthly Effluent Limitation (AMEL)

$$S_{AMEL} = \frac{C_{DM-AVG}}{0.079} + \frac{C_{CM-AVG}}{0.012} \leq 1.0$$

C_{DM-AVG} = average monthly diazinon effluent concentration in $\mu\text{g/L}$.

C_{CM-AVG} = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$.

- ii. Maximum Daily Effluent Limitation (MDEL)

$$S_{MDEL} = \frac{C_{DD-MAX}}{0.16} + \frac{C_{CD-MAX}}{0.025} \leq 1.0$$

C_{DD-MAX} = maximum daily diazinon effluent concentration in $\mu\text{g/L}$.

C_{CD-MAX} = maximum daily chlorpyrifos effluent concentration in $\mu\text{g/L}$.

- e. **Methylmercury. Effective 31 December 2030**, the effluent calendar year annual methylmercury load shall not exceed 0.010 grams.

2. Interim Effluent Limitations

The Discharger shall maintain compliance with the following interim effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the MRP, Attachment E:

- a. **Mercury, Total. Effective immediately and until 30 December 2030**, the effluent calendar year annual total mercury load shall not exceed 0.18 grams. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (section IV.A.1.e).

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Fourteen Mile Slough:

- 1. **Bacteria.** The six-week rolling geometric mean of Escherichia coli (E. coli) shall not exceed 100 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a statistical threshold value (STV) of 320 cfu/100 mL not to be

exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:** The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by U.S. EPA or the Executive Officer;
 - d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution 68-16 and 40 C.F.R. section 131.12.);
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
 - f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15; nor

- g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

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

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

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

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

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. **Temperature.** The natural temperature to be increased by more than 5°F.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

17. **Turbidity:**

- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
- b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTU;
- c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTU;
- d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTU; nor

- e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTU.

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 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge

use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

- 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 shall ensure compliance with any existing or future pretreatment standard promulgated by U.S. EPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- j. 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.

- l. 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.
- m. 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.

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

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This Order may be reopened to address changes to the Delta Mercury Control Program.
- d. **Whole Effluent Toxicity (WET).** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Resources Control Board (State Water Board) revises the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy of SIP) toxicity control provisions, this Order may be reopened to implement the new provisions.
- e. **Water Effects Ratios (WER's) 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 recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal

translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

- f. **Performance-based Effluent Limitations for Arsenic and Barium.** If the Discharger submits a report describing changes in the concentration of arsenic or barium in groundwater influent to the treatment system that are expected or encountered due to naturally occurring processes (e.g., significant changes in precipitation patterns, increases or decreases in groundwater elevations, or changes in the distribution of VOC's requiring adjustment of pumping rates or installation of additional extraction wells), this Order may be reopened to modify the performance-based effluent limitations for arsenic and/or barium.
- g. **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 \(CV-SALTS\)](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/) web page:
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

2. **Special Studies, Technical Reports and Additional Monitoring Requirements**

- a. **Toxicity Reduction Evaluation (TRE) Requirements.** This provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of WET, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.
 - i. **Numeric Toxicity Monitoring Trigger.** The numeric Toxicity Unit (TUc) monitoring trigger is 1 TUc (where TUc = 100/NOEC). The

monitoring trigger is not an effluent limitation; it is the toxicity threshold above which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection ii, below.

- ii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic WET result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:
 - (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as 100/EC₂₅) OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, if the result is greater than 1.3 TUc (as 100/EC₂₅) AND the percent effect is greater than or equal to 25 percent at 100 percent effluent, proceed to step (b).
 - (b) **Evaluate 6-week Median.** The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as 100/EC₂₅) and the percent effect is greater than 25 percent at 100 percent effluent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring. See Compliance Determination section VII.G for procedures for calculating a 6-week median.
 - (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the Facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE or participate in an approved TES as described in the following subsections.
 - (d) **Toxicity Evaluation Study.** If the percent effect is \leq 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(i), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past

12 months and has been unsuccessful in identifying the toxicant.

- (e) **Toxicity Reduction Evaluation.** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:
- (i) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
- Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement a salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility.

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

4. Construction, Operation and Maintenance Specifications – Not Applicable

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

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

- a. **Compliance Schedule for Final Effluent Limitations for Methylmercury.** This Order requires compliance with the final effluent limitations form methylmercury by 31 December 2030. The Discharger shall comply with the time schedule shown in the Technical Reports Table to ensure compliance with the final effluent limitations.

VII. COMPLIANCE DETERMINATION

A. **Total Mercury Mass Loading Effluent Limitations (Sections IV.A.1.e and IV.A.2.a).** The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the MRP and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.
2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

B. **Average Daily Discharge Flow Prohibition (Section III.E).** Compliance with the average daily discharge flow prohibition will be determined based on the average of all flow values obtained within a calendar day (i.e., midnight through 11:59 PM).

C. **Volatile Organic Compounds (VOC's) Maximum Daily Effluent Limitation (MDEL) (Section IV.A.1.a).** VOC's include all VOC's identified as constituents of concern in the influent groundwater, including benzene, 1,1-dichloroethylene, 1,2-dichloroethane, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes. The MDEL of 0.5 µg/L applies to each VOC.

D. **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 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.
- E. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.d)** Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as ND concentrations to be considered to be zero.
- F. Use of Delta Regional Monitoring Program and Other Receiving Water Data to Determine Compliance with Receiving Water Limitations.** Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this Order will not be used directly to determine that the discharge is in violation of this Order. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger that is not conducted by the Delta Regional Monitoring Program and submit that monitoring data. As described in section VIII of Attachment E, such data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Order.
- G. Chronic Whole Effluent Toxicity (WET) Effluent Trigger (Section VI.C.2.a.i).** To evaluate compliance with the chronic WET effluent trigger, the median TUC shall be the median of up to three consecutive chronic toxicity bioassays during a 6-week period. This includes a routine chronic toxicity monitoring event and two subsequent optional compliance monitoring events. If additional compliance monitoring events are not conducted, the median is equal to the result for routine chronic toxicity

monitoring event. If only one additional compliance monitoring event is conducted, the median will be established as the arithmetic mean of the routine monitoring event and compliance monitoring event.

Where the median chronic toxicity units exceeds 1 TUc (as 100/NOEC) for any endpoint, the Discharger will be deemed out of compliance with the chronic toxicity effluent trigger if the median percent effect at 100 percent effluent for the same endpoint also exceeds 25 percent. The percent effect used to evaluate compliance with the chronic toxicity effluent trigger shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent limitation.

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

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.

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.

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 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.

No-Observed-Effect-Concentration (NOEC)

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

Not Detected (ND)

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

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

Figure B-1. Lincoln Center Environmental Remediation Trust Groundwater Treatment System Site Map

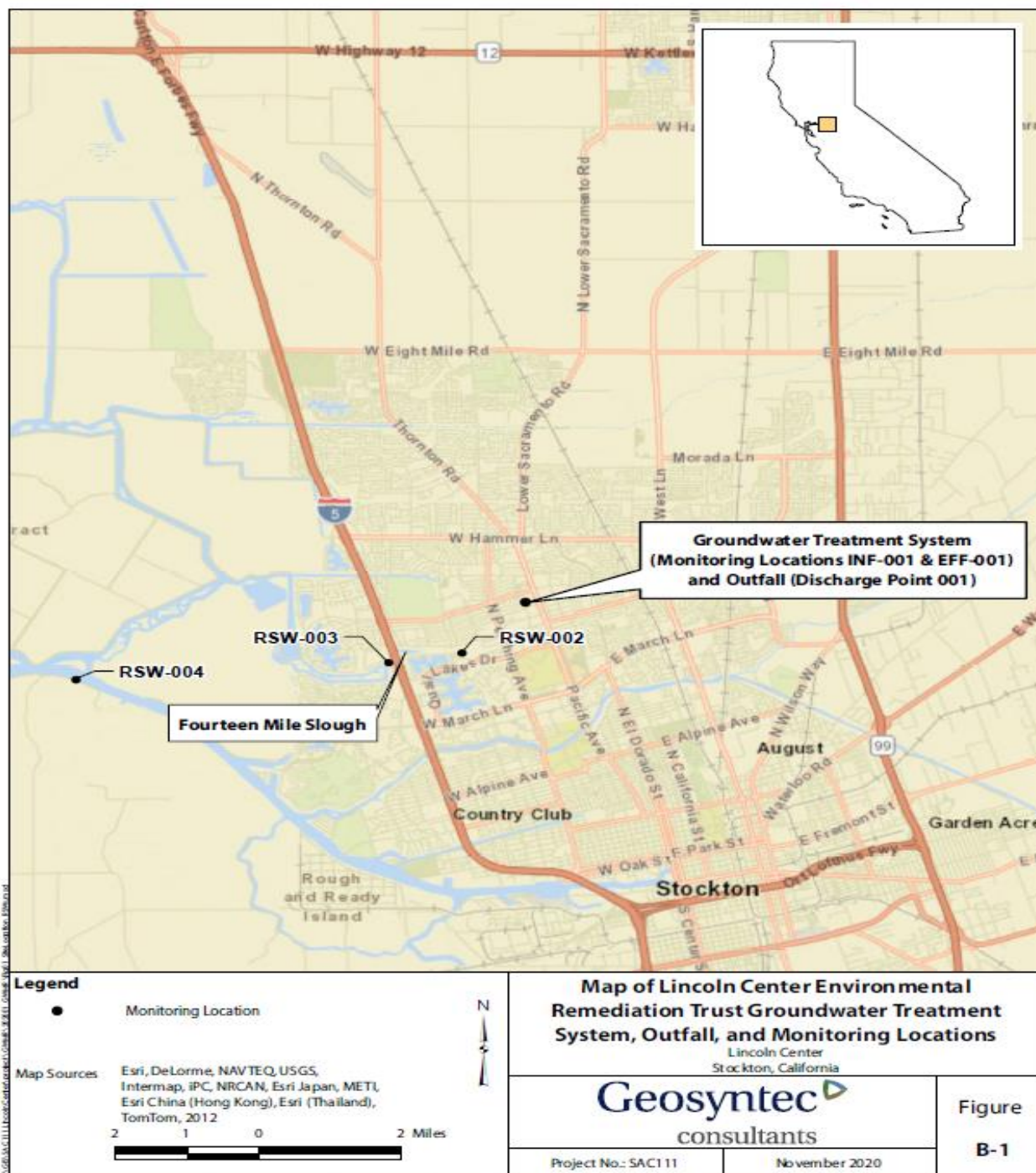
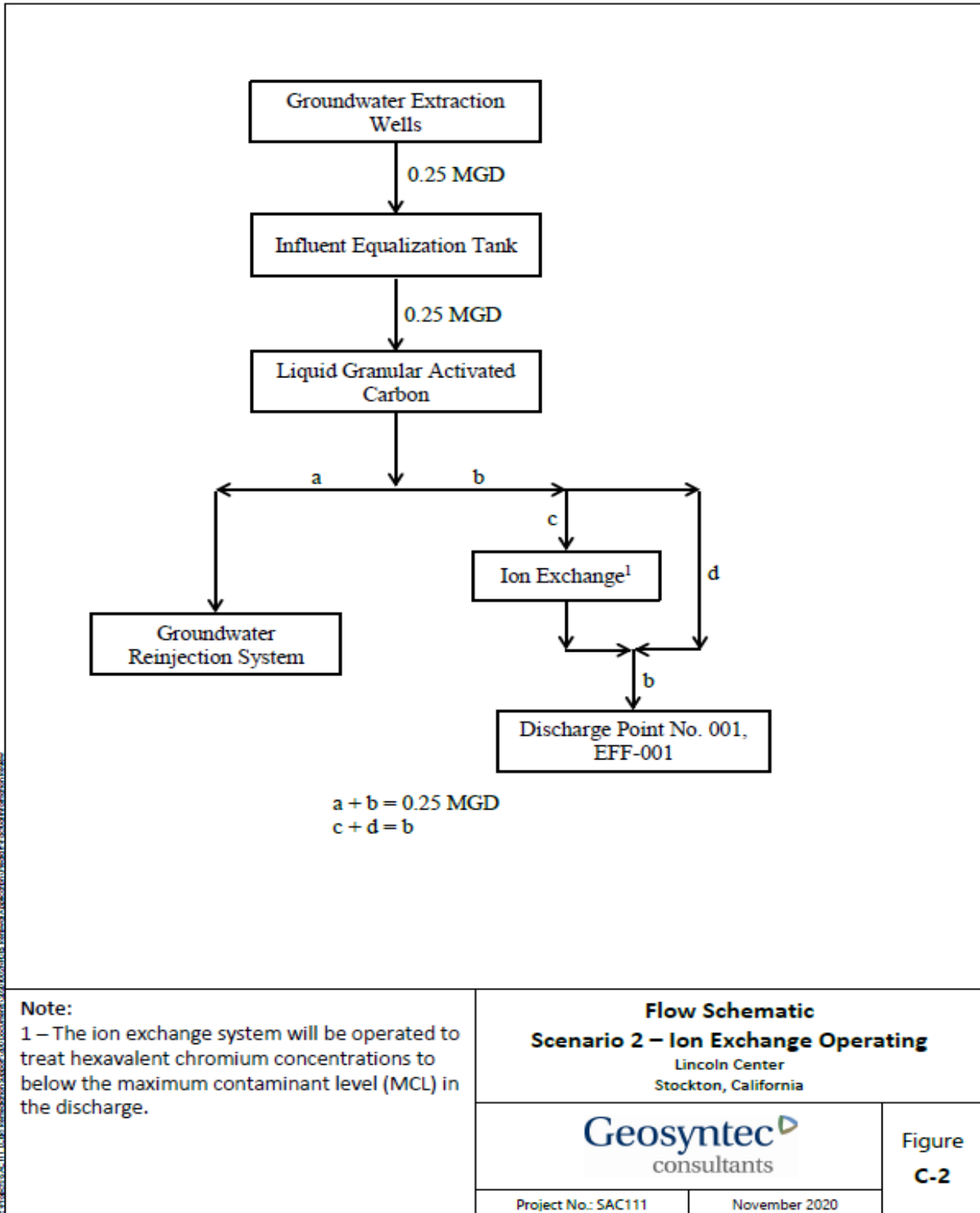


Figure C-2. Lincoln Center Environmental Remediation Trust Groundwater Treatment System Flow Schematic: Scenario 2



Note:
 1 – The ion exchange system will be operated to treat hexavalent chromium concentrations to below the maximum contaminant level (MCL) in the discharge.

Flow Schematic
Scenario 2 – Ion Exchange Operating
 Lincoln Center
 Stockton, California

Geosyntec
 consultants

Figure
C-2

Project No.: SAC111

November 2020

ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply:

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

G. Bypass

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

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

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

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

H. Upset

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

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

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

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

IV. STANDARD PROVISIONS – RECORDS

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

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

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

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

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

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. section 122.22(d))

6. Any person providing the electronic signature for such documents described in Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R section 122.22(e))

C. Monitoring Reports

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

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

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. section 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification

requirements under section 122.42(a)(1) (see Additional Provisions— Notification Levels VII.A.1). (40 C.F.R. section 122.41(l)(1)(ii))

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. section 122.41(l)(1)(iii))

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

J. Initial Recipient for Electronic Reporting Data

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

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

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. section 122.42(a)(1)):
 - a. 100 micrograms per liter ($\mu\text{g/L}$) (40 C.F.R. section 122.42(a)(1)(i));
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. section 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. section 122.42(a)(1)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 C.F.R. section 122.42(a)(1)(iv))
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. section 122.42(a)(2)):
 - a. 500 $\mu\text{g/L}$ (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. Data generated from field measurements such as pH, dissolved oxygen, electrical conductivity, turbidity, temperature, and residual chlorine, are exempt pursuant to Water Code section 13176. A manual containing the steps followed in this program for any field measurements such as pH, dissolved oxygen, electrical conductivity, turbidity, temperature, and residual chlorine must be kept on-site 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 MRP.
- F.** Laboratory analytical methods shall be sufficiently sensitive in accordance with the Sufficiently Sensitive Methods Rule (SSM Rule) specified under 40 C.F.R. sections 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. part 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 Board at the following address:

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 MRP.
- 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
--	INF-001	A location where a representative sample of the Facility influent can be obtained after the last connection before the wastes enter the treatment process.
001	EFF-001	A location where a representative sample of the Facility effluent can be obtained after the last connection through which wastes can be admitted into the outfall to the storm drain system. Latitude: 38° 0' 29.73" N - Longitude: 121° 19' 19.70" W
--	RSW-002	In Fourteen Mile Slough, 200 feet downstream from the outfall from the storm drain system.
--	RSW-003	In Fourteen Mile Slough, at the Feather River Drive Bridge, approximately 5,500 feet downstream from the outfall from the storm drain system. Latitude: 37° 59' 48" N - Longitude: 121° 21' 0" W
--	RSW-004	In the San Joaquin River at Juggler's Island, approximately 6.4 miles downstream from the outfall from the storm drain system. Latitude: 37° 59' 36" N - Longitude: 121° 24' 48" W

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 the Facility's influent at Monitoring Location 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	MGD	Meter	Continuous
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Quarter
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	Grab	1/Quarter
Volatile Organic Compounds	µg/L	Grab	1/Quarter

2. **Table E-2 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-2:
 - a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 C.F.R. part 136-allowed sample type.
 - b. A hand-held field meter may be used for **electrical conductivity**, 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 MRP shall be maintained at the Facility.
 - c. **Volatile Organic Compounds (VOC's)** shall include benzene, 1,1-dichloroethylene, 1,2-dichloroethane, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes and 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.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated groundwater at Monitoring Location EFF-001 in accordance with Table E-3 and the testing requirements described in section IV.A.2 below, when discharging to surface water:

Table E-3. Effluent Monitoring

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
pH	standard units	Grab	1/Month
Arsenic, Total Recoverable	µg/L	Grab	1/Month
Chromium VI, Total Recoverable	µg/L	Grab	1/Quarter
Mercury, Total Recoverable	ng/L	Grab	1/Quarter
Barium, Total Recoverable	µg/L	Grab	1/Month
Chlorpyrifos	µg/L	Grab	1/Year
Diazinon	µg/L	Grab	1/Year
Dissolved Oxygen	mg/L	Grab	1/Month
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Month
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter
Methylmercury	ng/L	Grab	1/Quarter
Temperature	°C	Grab	1/Month
Total Dissolved Solids	mg/L	Grab	1/Quarter
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	Grab	1/Month
Volatile Organic Compounds	µg/L	Grab	1/Month

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 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 C.F.R. part 136 allowed sample type.
 - b. A hand-held field meter may be used for **temperature, pH, and electrical conductivity**, 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 MRP shall be maintained at the Facility.
 - c. **Priority Pollutants.** For all priority pollutant constituents listed in Table E-3 (arsenic, chromium VI, mercury, and priority pollutant VOC's), the reporting level (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 122.4(i)(1)(iv).

- d. **Total Mercury and Methylmercury.** Unfiltered methylmercury and total mercury samples shall be taken using **clean hands/dirty hands procedures**, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2). The analysis of methylmercury and total mercury shall be by U.S. EPA method 1630 and 1631 (Revision E), respectively, with a **reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury**.
- e. **Volatile Organic Compounds (VOC's)** shall include benzene, 1,1-dichloroethylene, 1,2-dichloroethane, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes and 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.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the acute toxicity testing requirement:

- 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 flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at 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, total residual chlorine, 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 conduct chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:
1. **Monitoring Frequency** – The Discharger shall perform routine **semi-annual** chronic toxicity testing. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TUc (as 100/EC₂₅) AND a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and performing chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at least one week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity. See Compliance Determination section VII.G for procedures for calculating a 6-week median.
 2. **Sample Types** – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-004, as identified in this MRP.
 3. **Sample Volumes** – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
 4. **Test Species** – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test).
 5. **Methods** – The presence of chronic toxicity shall be estimated as specified in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002.
 6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. **Dilutions** – For routine and compliance chronic toxicity monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. 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

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

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than 14 days after receiving notification of a test failure. A test failure is defined as follows:
 - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in the Method Manual.
- C. WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the 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, WET monitoring shall be reported as follows:
1. **Chronic WET Reporting.** Routine and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self-monitoring reports (SMR’s), 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 statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the PMSD;
 - d. The dates of sample collection and initiation of each toxicity test; and

- e. The results compared to the numeric toxicity monitoring trigger.
 - f. The percent effect at 100% effluent for each test that can be used to determine a percent effect (i.e. *Ceriodaphnia dubia* reproduction, etc.). Additionally, the quarterly SMR's shall contain an updated chronology of chronic toxicity test results expressed in TUC, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, TES, or TRE monitoring.
2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the quarterly SMR's and reported as percent survival.
 3. **TRE Reporting.** Reports for TRE's shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.
 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

The Discharger shall implement the Receiving Water Monitoring Requirements in Attachment E, Sections VIII.A and VIII.B of this Order. However, in lieu of conducting the individual monitoring specified in Attachment E, Sections VIII.A and VIII.B of this Order (including visual observations) the Discharger may elect to participate in the Delta Regional Monitoring Program. The Discharger may choose to conduct all or part of the receiving water monitoring through the Delta Regional Monitoring Program. If the Discharger elects to cease all or part of the individual receiving water monitoring and instead participates in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative informing the Board that the Discharger will participate in the Delta Regional Monitoring Program, and the date on which individual receiving water monitoring required under Attachment E, Sections VIII.A and VIII.B will cease, or be modified, and specific monitoring locations and constituent combinations that

will no longer be conducted individually. Written approval of the Discharger's request, by the Executive Officer, is required prior to discontinuing part or all of individual receiving water monitoring. Approval by the Executive Officer is not required prior to participating in the Delta Regional Monitoring Program.

If the Discharger participates in the Delta Regional Monitoring Program in lieu of conducting individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta Regional Monitoring Program will cease and individual monitoring is reinstated. Receiving water monitoring under Attachment E, Sections VIII.A and VIII.B is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. If the Discharger fails to adequately support the Delta Regional Monitoring Program, as defined by the Delta Regional Monitoring Program Steering Committee, the Discharger shall reinstate individual receiving water monitoring under Attachment E, Sections VIII.A and VIII.B upon written notice from the Executive Officer. During participation in the Delta Regional Monitoring Program, the Discharger may conduct and submit any or part of the receiving water monitoring included in this Monitoring and Reporting Program that is deemed appropriate by the Discharger.

Delta Regional Monitoring Program data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Permit. Delta Regional Monitoring Program monitoring stations are established generally as "integrator sites" to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent, but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data, along with individual Discharger data, may be used to help establish background receiving water quality for reasonable potential analyses in an NPDES permit after evaluation of the applicability of the data for that purpose. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

During the period of participation in the Delta Regional Monitoring Program, the Discharger shall continue to report any individually conducted receiving water monitoring data in the Electronic Self-Monitoring Reports (eSMR) according to the Monitoring and Reporting Program. In addition, 1) with each submitted eSMR, the Discharger's eSMR cover letter shall state that the Discharger is participating in the Delta Regional Monitoring Program in lieu of conducting the individual receiving water monitoring program required

by the permit, and 2) with each annual report, the Discharger shall attach a copy of the letter originally submitted to the Central Valley Water Board describing the monitoring location(s) and constituent combinations that will no longer be conducted individually.

A. Monitoring Location RSW-002

1. The Discharger shall monitor Fourteen Mile Slough at Monitoring Location RSW-002 in accordance with Table E-5 and the testing requirements described in section VIII.A.2 below, when discharging to surface water:

Table E-5. Receiving Water Monitoring – Monitoring Location RSW-002

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Tide Stage	--	--	1/Quarter
pH	standard units	Grab	1/Month
Dissolved Oxygen	mg/L	Grab	1/Month
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Month
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter
Temperature	°F	Grab	1/Month
Turbidity	NTU	Grab	1/Month

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 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 C.F.R. part 136 allowed sample type.
 - b. A hand-held field meter may be used for **pH, dissolved oxygen, electrical conductivity, temperature, and turbidity** 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 MRP shall be maintained at the Facility.
3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions when discharging to Fourteen Mile Slough. Attention shall be given to the presence of:
 - a. Floating or suspended matter;

- b. Discoloration;
- c. Bottom deposits;
- d. Aquatic life;
- e. Visible films, sheens, or coatings;
- f. Fungi, slimes, or objectionable growths; and
- g. Potential nuisance conditions.

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

B. Monitoring Location RSW-003

- 1. The Discharger shall monitor Fourteen Mile Slough at Monitoring Location RSW-003 **quarterly from 1 April 2022 to 31 March 2023** in accordance with Table E-6 and the testing requirements described in section VIII.B.2 below, when discharging to surface water:

Table E-6. Receiving Water Monitoring – Monitoring Location RSW-003

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow Conditions	MGD	Observation	1/Quarter
Tide Stage	--	--	1/Quarter
pH	standard units	Grab	1/Quarter
Arsenic, Dissolved	µg/L	Grab	1/Quarter
Barium, Dissolved	µg/L	Grab	1/Quarter
Dissolved Oxygen	mg/L	Grab	1/Quarter
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Quarter
Temperature	°F	Grab	1/Quarter
Turbidity	NTU	Grab	1/Quarter

- 2. **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.** The Discharger shall monitor for these parameters concurrent with the Effluent and Receiving Water Characterization Study required in section IX.A of this MRP.
 - b. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In

addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 C.F.R. part 136 allowed sample type.

- c. A hand-held field meter may be used for **pH, dissolved oxygen, electrical conductivity, temperature, and turbidity** 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 MRP shall be maintained at the Facility.
- d. **Priority Pollutants.** For all priority pollutant constituents listed in Table E-6 (arsenic), 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) (**See Attachment E, Table E-7**).

IX. OTHER MONITORING REQUIREMENTS

A. 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 July 2022 and 30 September 2022.**
- b. **Receiving Water Sampling.** Samples shall be collected from the background receiving water (Monitoring Location RSW-004) **once between 1 July 2022 and 30 September 2022.**

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

- 2. **Sample Type.** Effluent samples shall be taken as described in Table E-7, below.
- 3. **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.

4. The Discharger shall conduct effluent characterization monitoring in accordance with Table E-7 and the testing requirements described in section IX.A.6 below.

Table E-7. 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	Benidine	92-87-5	µg/L	Grab
61	Benzo(a)Pyrene	50-32-8	µg/L	Grab
63	Benzo(ghi)Perylene	191-24-2	µg/L	Grab
64	Benzo(k)Fluoranthene	207-08-9	µg/L	Grab
65	Bis (2-Chloroethoxy) Methane	111-91-1	µg/L	Grab
66	Bis (2-Chloroethyl) Ether	111-44-4	µg/L	Grab
67	Bis (2-Chloroisopropyl) Ether	108-60-1	µg/L	Grab
68	Bis(2-Ethylhexyl) Phthalate	117-81-7	µg/L	Grab
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab
73	Chrysene	218-01-9	µg/L	Grab
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab
79	Diethyl Phthalate	84-66-2	µg/L	Grab
80	Dimethyl Phthalate	131-11-3	µg/L	Grab
86	Fluoranthene	206-44-0	µg/L	Grab
87	Fluorene	86-73-7	µg/L	Grab
88	Hexachlorobenzene	118-74-1	µg/L	Grab
90	Hexachlorocyclopentadiene	77-47-4	µg/L	Grab
91	Hexachloroethane	67-72-1	µg/L	Grab
92	Indeno(1,2,3-cd) Pyrene	193-39-5	µg/L	Grab
93	Isophorone	78-59-1	µg/L	Grab

98	N-Nitrosodiphenylamine	86-30-6	µg/L	Grab
96	N-Nitrosodimethylamine	62-75-9	µg/L	Grab
97	N-Nitrosodi-n-Propylamine	621-64-7	µg/L	Grab
95	Nitrobenzene	98-95-3	µg/L	Grab
53	Pentachlorophenol (PCP)	87-86-5	µg/L	Grab
99	Phenanthrene	85-01-8	µg/L	Grab
54	Phenol	108-95-2	µg/L	Grab
100	Pyrene	129-00-0	µg/L	Grab

INORGANICS

CTR Number	Inorganic Parameters	CAS Number	Units	Effluent Sample Type
NL	Aluminum	7429-90-5	µg/L	Grab
1	Antimony, Total Recoverable	7440-36-0	µg/L	Grab
2	Arsenic, Total Recoverable	7440-38-2	µg/L	Grab
15	Asbestos	1332-21-4	µg/L	Grab
3	Beryllium, Total Recoverable	7440-41-7	µg/L	Grab
4	Cadmium, Total Recoverable	7440-43-9	µg/L	Grab
5a (III)	Chromium, Total	7440-47-3	µg/L	Grab
6	Copper, Total Recoverable	7440-50-8	µg/L	Grab
14	Iron, Total Recoverable	7439-89-6	µg/L	Grab
7	Lead, Total Recoverable	7439-92-1	µg/L	Grab
8	Mercury, Total Recoverable	7439-97-6	µg/L	Grab
NL	Mercury, Methyl	22967-92-6	µg/L	Grab
NL	Manganese, Total Recoverable	7439-96-5	µg/L	Grab
9	Nickel, Total Recoverable	7440-02-0	µg/L	Grab
10	Selenium, Total Recoverable	7782-49-2	µg/L	Grab
11	Silver, Total Recoverable	7440-22-4	µg/L	Grab
12	Thallium, Total Recoverable	7440-28-0	µg/L	Grab
13	Zinc, Total Recoverable	7440-66-6	µg/L	Grab

NON-METALS/MINERALS

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

PESTICIDES/PCBs/DIOXINS

CTR Number	Pesticide/PCB/Dioxin Parameters	CAS Number	Units	Effluent Sample Type
110	4,4-DDD	72-54-8	µg/L	Grab
109	4,4-DDE	72-55-9	µg/L	Grab
108	4,4-DDT	50-29-3	µg/L	Grab
112	alpha-Endosulfan	959-98-8	µg/L	Grab
103	alpha-BHC (Benzene hexachloride)	319-84-6	µg/L	Grab
102	Aldrin	309-00-2	µg/L	Grab
113	beta-Endosulfan	33213-65-9	µg/L	Grab
104	beta-BHC (Benzene hexachloride)	319-85-7	µg/L	Grab
107	Chlordane	57-74-9	µg/L	Grab
106	delta-BHC (Benzene hexachloride)	319-86-8	µg/L	Grab
111	Dieldrin	60-57-1	µg/L	Grab
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
7	Ammonia (as N)	7664-41-7	mg/L	Grab
8	Nitrate (as N)	14797-55-8	mg/L	Grab
9	Nitrite (as N)	14797-65-0	mg/L	Grab

OTHER CONSTITUENTS OF CONCERN

CTR Number	Other Constituents of Concern	CAS Number	Units	Effluent Sample Type
NL	1,2,3-Trichloropropane (TCP)	96-18-4	ug/L	Grab
NL	Trichlorofluoromethane	75-69-4	µg/L	Grab
NL	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	µg/L	Grab
NL	Styrene	100-42-5	µg/L	Grab
NL	Xylenes	1330-20-7	µg/L	Grab
NL	Barium	7440-39-3	µg/L	Grab
NL	Fluoride	16984-48-8	mg/L	Grab
NL	Molybdenum	7439-98-7	µg/L	Grab
NL	Tributyltin	688-73-3	µg/L	Grab
NL	Alachlor	15972-60-8	µg/L	Grab
NL	Atrazine	1912-24-9	µg/L	Grab
NL	Bentazon	25057-89-0	µg/L	Grab
NL	Carbofuran	1563-66-2	µg/L	Grab
NL	2,4-D	94-75-7	µg/L	Grab
NL	Dalapon	75-99-0	µg/L	Grab
NL	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	µg/L	Grab
NL	Di(2-ethylhexyl)adipate	103-23-1	µg/L	Grab
NL	Dinoseb	88-85-7	µg/L	Grab
NL	Diquat	85-00-7	µg/L	Grab
NL	Endothal	145-73-3	µg/L	Grab
NL	Ethylene Dibromide (EDB)	106-93-4	µg/L	Grab
NL	Methoxychlor	72-43-5	µg/L	Grab
NL	Molinate (Ordram)	2212-67-1	µg/L	Grab
NL	Oxamyl	23135-22-0	µg/L	Grab
NL	Picloram	1918-02-1	µg/L	Grab
NL	Simazine (Princep)	122-34-9	µg/L	Grab
NL	Thiobencarb	28249-77-6	µg/L	Grab
NL	2,4,5-TP (Silvex)	93-72-1	µg/L	Grab
NL	Chlorpyrifos	2921-88-2	µg/L	Grab
NL	Diazinon	333-41-5	µg/L	Grab

5. **Table E-7 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-7.
 - a. 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-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.

- b. **Bis (2-ethylhexyl) phthalate.** In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit quarterly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Quarterly SMR's are required even if there is

no discharge. If no discharge occurs during the quarter, the monitoring report must be submitted stating that there has been no discharge.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with quarterly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	Submit with quarterly SMR
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year
1/Permit Term	1 January 2022	1 January through 31 December	Submit with annual SMR

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable 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 ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. The Discharger shall submit SMR's in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste

discharge requirements (WDR's); discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

- c. The Discharger shall attach all final laboratory reports from all contracted commercial laboratories, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed.
7. The Discharger shall submit in the SMR's calculations and reports in accordance with the following requirements:
- a. **Total Calendar Annual Mass Loading Mercury Effluent Limitations.** The Discharger shall calculate and report the total calendar annual mercury mass loading for the effluent in the December SMR. The total calendar year annual mass loading shall be calculated as specified in section VII.A of the Waste Discharge Requirements.
 - b. **Chlorpyrifos and Diazinon Effluent Limitations.** The Discharger shall calculate and report the value of S_{AMEL} and S_{MDEL} for the effluent, using the equation in section IV.A.1.d and consistent with the Compliance Determination Language in section VII.E of the Waste Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

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

D. Other Reports

1. **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) RL, 3) MDL, and 4) analytical method. The analytical methods shall be sufficiently sensitive with RL's consistent with the SSM Rule per 40 C.F.R. sections 122.21(e)(3) and 122.44(i)(1)(iv), and with the ML's 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. 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.

2. **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.

3. **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;
 - c. NPDES Form 2C;
 - d. Summary of the effectiveness of the Salinity Evaluation and Minimization Plan during the permit term; and

- e. **Mixing Zone Requests.** A mixing zone analysis for constituents the Discharger is requesting the continuation of dilution credits and mixing zones in the calculation of water quality-based effluent limits.
4. **Technical Report Submittals.** This Order includes requirements to submit a 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-9. 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 2025	MRP X.D.3
2	Analytical Methods Report	1 June 2021	MRP X.D.1
3	Analytical Methods Report Certification	1 January 2022	MRP IX.A.4
4	Annual Operations Report	1 February 2022	MRP X.D.2
5	Annual Operations Report	1 February 2023	MRP X.D.2
6	Annual Operations Report	1 February 2024	MRP X.D.2
7	Annual Operations Report	1 February 2025	MRP X.D.2
8	Annual Operations Report	1 February 2026	MRP X.D.2
Intentionally left blank	Compliance Schedule for Final Effluent Limitations for Methylmercury WDR section VI.C.7.a (see table note)	Intentionally left blank	Intentionally left blank
9	Mercury Annual Progress Reports	1 February 2022	WDR VI.C.7.a
10	Mercury Annual Progress Reports	1 February 2023	WDR VI.C.7.a
11	Mercury Annual Progress Reports	1 February 2024	WDR VI.C.7.a
12	Mercury Annual Progress Reports	1 February 2025	WDR VI.C.7.a
13	Mercury Annual Progress Reports	1 February 2026	WDR VI.C.7.a
14	Notification of Full Compliance Signed by Legally Responsible Official (LRO)	31 December 2030	WDR VI.C.7.a
Intentionally left blank	Other Reports	Intentionally left blank	Intentionally left blank
15	Salinity Evaluation and Minimization Plan	Submit with ROWD	MRP X.D.3

Table E-9 Note:

- Beginning 1 February 2022 and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on the pollution minimization activities for mercury. **This annual report may be combined with the Annual Operations Report and submitted as one report.** The progress reports shall discuss the pollution minimization activities implemented and

provide an evaluation of their effectiveness, including a summary of total mercury and methylmercury monitoring results.

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:	5B391080001
CIWQS Facility Place ID:	237054
Discharger:	Lincoln Center Environmental Remediation Trust
Name of Facility:	Groundwater Treatment System
Facility Address:	6471 Pacific Avenue
Facility City, State Zip:	Stockton, CA 95207
Facility County:	San Joaquin County
Facility Contact, Title and Phone Number:	Joe Niland, Trustee, (916) 637-8325
Authorized Person to Sign and Submit Reports:	Joe Niland, Trustee, (916) 637-8325
Mailing Address:	3043 Gold Canal Drive, Suite 100, Rancho Cordova, CA 95670
Billing Address:	Same as mailing address
Type of Facility:	Groundwater extraction and treatment system
Major or Minor Facility:	Minor
Threat to Water Quality:	2
Complexity:	B
Pretreatment Program:	Not applicable
Recycling Requirements:	Not applicable
Facility Permitted Flow:	0.25 million gallons per day (MGD)
Facility Design Flow:	0.25 MGD
Watershed:	Sacramento-San Joaquin Delta
Receiving Water:	Fourteen Mile Slough
Receiving Water Type:	Sacramento-San Joaquin Delta

- A.** The Lincoln Center Environmental Remediation Trust (hereinafter Discharger) is the owner and Geosyntec Consultants is the operator of the Lincoln Center Environmental Remediation Trust Groundwater Treatment System (hereinafter Facility), a groundwater extraction and treatment system.

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 Fourteen Mile Slough, a water of the United States within the Sacramento-San Joaquin Delta. The Discharger was previously regulated by Order R5-2016-0002 and National Pollutant Discharge Elimination System (NPDES) Permit No CA0084255 adopted on 18 February 2016, with an expiration date of 31 March 2021. 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 Resources Control Board (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 2 October 2020. The application was deemed complete on 13 November 2020.
- E.** Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed 5 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 (CCR), Title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Discharger was formed in 2001 to manage environmental remediation activities at Lincoln Center in Stockton, California resulting from historical releases from dry cleaning facilities and a sewer leak at the site. Prior to formation of the trust, the named discharger was The Settling Dry Cleaning Defendants, as defined by Consent Decree CIV-S-91 DFL (GGH) filed 18 January 1996 with the U.S. District Court, Eastern District of California.

The Facility is a groundwater extraction and treatment system designed to remove volatile organic compounds (VOC's) from groundwater. The treatment system also treats residual fluids generated during the continuing investigation, remediation, and monitoring activities at the site. Constituents of concern in the influent groundwater related to the cleanup activities performed by the Discharger include tetrachloroethylene and its breakdown products trichloroethylene, cis-1,2-dichloroethylene, and trans-1,2-dichloroethylene. Additional constituent of concern not related to the cleanup activities performed by the Discharger but reported in the influent groundwater include benzene, ethylbenzene, methyl tertiary butyl ether, toluene, total petroleum hydrocarbons (as gasoline), and xylene. The Discharger conducted a site-specific groundwater model to evaluate plume capture of the Facility prior to adoption of Order R5-2016-0002 and determined that plume capture could be maintained at pumping rates between 0.08 MGD and 0.25 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility consists of an influent equalization tank and three liquid-phase granulated activated carbon (LGAC) absorption canisters, two ion-exchange vessels (to use on an as-needed basis), and an effluent equalization tank. The activated carbon is regenerated or disposed of off-site.

The Facility originally included a low-profile air stripper prior to the LGAC for VOC removal. In addition, a vapor phase granular activated carbon vessel was used to absorb the VOC's prior to discharge to the atmosphere. Since initiation of operation of the groundwater cleanup in 1999, the constituents of concern (i.e., primarily tetrachloroethylene and its breakdown products trichloroethylene, cis-1,2-dichloroethylene, and trans-1,2-dichloroethylene) have been reduced substantially. The significant reduction meant that the air stripper was no longer needed. The Discharger conducted a test of the groundwater treatment system in February 2015 to evaluate the treatment efficiency using only the LGAC. The test indicated LGAC alone is capable of removing VOC's to the levels required in this Order.

B. Discharge Points and Receiving Waters

1. The Facility is located in section 21, T2N, R6E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated groundwater is discharged at Discharge Point 001 to a San Joaquin County storm drain located at Lincoln Center. The storm drain flows approximately 2 miles and terminates at the San Joaquin County Storm Pump Station #1 (SJGPS #1), located at the head of Fourteen Mile Slough at latitude 38° 0' 0.89" N and longitude 121° 19' 54.1" W. Fourteen Mile Slough is a water of the United States and a tributary to the Stockton Deep Water Ship Channel portion of the San Joaquin River within the Sacramento-San Joaquin Delta. This Order regulates discharges at Discharge Point 001.
3. Treated groundwater is also discharged to an in-situ chemical oxidation (ISCO) dosing and groundwater reinjection system. The reinjection system is regulated under General Order R5-2015-0012, General Waste Discharge Requirements

for In-Situ Groundwater Remediation and Discharge of Treated Groundwater to Land, as Order R5-2015-0012-013.

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

Effluent limitations contained in Order R5-2016-0002 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2016-0002 are as follows:

Table F-2. Historic Effluent Limitations

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	MDEL 0.25 (see table note 1. below)	--	--	0.19
pH	standard conditions	Instantaneous Max 6.5 Instantaneous Min 8.5	--	--	6.52 – 7.31
Arsenic, Total Recoverable	µg/L	AMEL 23 MDEL 29	12	--	12
Mercury, Total Recoverable	grams/year	AMEL 0.18 (see table note 2. below)	0.015 (see table note 3. below)	--	--
Barium, Total Recoverable	µg/L	AMEL 415 MDEL 486	360	--	360
Chlorpyrifos	µg/L	(see table notes 4. and 5. below)	ND	--	ND
Diazinon	µg/L	(see table notes 4. and 5. below)	ND	--	ND
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,500	961	--	--
Methylmercury	grams/year	AMEL 0.010 (see table note 6. below)	--	--	--
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	MDEL 50	--	--	ND
Volatile Organic Carbons (see table note 7. below)	µg/L	MDEL 0.5	--	--	0.62
Acute Toxicity	% Survival	MDEL 70/90 (see table notes 8. and 9. below)	--	--	100 (see table note 10. below)
Chronic Toxicity	TUc	(see table note 11. below)	--	--	>1

Table F-2 Notes:

1. The historic effluent limitation of 0.25 MGD is applied as an average daily discharge flow effluent limitation.
2. Interim annual mass loading effluent limitation, effective until 31 December 2030.
3. Represents the maximum total calendar annual mass load.

4. Average Monthly Effluent Limitation (AMEL):

$$S_{AMEL} = C_{d\ M-avg}/0.079 + C_{c\ M-avg}/0.012 \leq 1.0$$

Where:

$C_{d\ M-avg}$ = average monthly diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ M-avg}$ = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$

5. Maximum Daily Effluent Limitation (MDEL):

$$S_{MDEL} = C_{d\ D-max}/0.16 + C_{c\ D-max}/0.025 \leq 1.0$$

Where:

$C_{d\ D-max}$ = maximum daily diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ D-max}$ = maximum daily chlorpyrifos effluent concentration in $\mu\text{g/L}$

6. Final annual mass loading effluent limitation effective 31 December 2030.

7. Includes all volatile organic carbons (VOC's) identified as constituents of concern in influent groundwater, including benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.

8. Minimum percent survival for any one bioassay.

9. Median percent survival of three consecutive acute bioassays.

10. Represents the minimum observed percent survival.

11. There shall be no chronic toxicity in the effluent.

D. Compliance Summary – Not Applicable

E. Planned Changes – Not Applicable

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 (MUN). Beneficial uses applicable to Fourteen Mile Slough within the Sacramento-San Joaquin Delta are as follows:

Table F-3 Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Fourteen Mile Slough	Existing: Municipal and domestic water supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); navigation (NAV); and commercial and sport fishing (COMM).

- b. **Bay-Delta Plan.** The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) was adopted in May 1995 by the State Water Board, superseding the

1991 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

The State Water Board adopted Decision 1641 (D-1641) on 29 December 1999 and revised on 15 March 2000. D-1641 implements flow objectives for the Bay-Delta Estuary, approves a petition to change points of diversion of the Central Valley Project and the State Water Project in the Southern Delta, and approves a petition to change places of use and purposes of use of the Central Valley Project. The water quality objectives of the Bay-Delta Plan are implemented as part of this Order.

- c. **Sediment Quality.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* on 16 September 2008, and it became effective on 25 August 2009. This plan supersedes other narrative sediment quality objectives and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. Requirements of this Order implement sediment quality objectives of this plan.
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, which 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 Antidegradation Policy). The State Antidegradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Antidegradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The 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 Antidegradation 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 (MCL's) designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
8. **Storm Water Requirements.** U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program does not regulate storm water discharges from environmental cleanup service (SIC Code 4959) facilities. This Order does not contain storm water requirements.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control

technology. On 6 April 2018, U.S. EPA gave final approval to California's 2014-2016 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLS's), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The listing for the eastern portion of the Sacramento-San Joaquin Delta includes chlorpyrifos, dichlorodiphenyltrichloroethane (DDT), diazinon, group A pesticides, invasive species, mercury, and toxicity. The listing for the Stockton Ship Channel within the Sacramento-San Joaquin Delta includes chlorpyrifos, DDT, diazinon, dioxin, furan compounds, group A pesticides, invasive species, mercury, organic enrichment/low dissolved oxygen, polychlorinated biphenyls (PCB's), temperature, and toxicity.

2. **Total Maximum Daily Loads (TMDL's).** Tables F-4 and F-5, below, identify the 303(d) listings and TMDL's for the eastern portion of the Sacramento-San Joaquin Delta and the Stockton Ship Channel. This permit includes water quality-based effluent limitations (WQBEL's) that are consistent with the assumptions and considerations of the applicable waste load allocations (WLA's) in the 2007 TMDL for diazinon and chlorpyrifos and the 2011 TMDL for methylmercury.

The Regional Water Board adopted Resolution R5- 2005-0005, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel*, on 27 January 2005, which became effective 27 February 2007. WLA's for oxygen-demanding substances were not established in the TMDL. The phased implementation plan does not allow any increase in the discharge of oxygen demanding substances after 28 January 2005 and prohibits the discharge of oxygen demanding substances after 31 December 2011 when flow in the Deep Water Ship Channel is less than 3,000 cubic feet per second (cfs), unless dissolved oxygen objectives are being met. This Order includes receiving water limitations for dissolved oxygen, and effluent and receiving water monitoring requirements for dissolved oxygen.

Table F-4. 303 (d) List for Delta Waterways (Eastern Portion)

Pollutant	Potential Sources	TMDL Status
Chlorpyrifos	Source Unknown	Adopted and Effective (10 October 2007)
DDT	Source Unknown	Not Completed
Diazinon	Source Unknown	Adopted and Effective (10 October 2007)
Group A Pesticides	Source Unknown	Not Completed
Invasive Species	Source Unknown	Not Completed
Mercury	Agricultural Return Flows; Atmospheric Deposition; Highway/Road/Bridge Runoff; Industrial Point Sources; Municipal Point Sources; Natural Sources; Resource Extraction; Urban Runoff/Storm Sewers	Adopted and Effective (20 October 2011)
Toxicity	Source Unknown	Not Completed

Table F-5. 303 (d) List for Delta Waterways (Stockton Ship Channel)

Pollutant	Potential Sources	TMDL Status
Chlorpyrifos	Source Unknown	Adopted and Effective (10 October 2007)
DDT	Source Unknown	Not Completed
Diazinon	Source Unknown	Adopted and Effective (10 October 2007)
Dioxin	Source Unknown	Not Completed
Furan Compounds	Source Unknown	Not Completed
Group A Pesticides	Source Unknown	Not Completed
Invasive Species	Source Unknown	Not Completed
Mercury	Agricultural Return Flows; Atmospheric Deposition; Industrial Point Sources; Municipal Point Sources; Natural Sources; Resource Extraction; Urban Runoff/Storm Sewers	Adopted and Effective (20 October 2011)
Organic Enrichment/Low Dissolved Oxygen	Source Unknown	Adopted and Effective (27 February 2007)
PCB's	Source Unknown	Not Completed
Temperature, Water	Source Unknown	Not Completed
Toxicity	Source Unknown	Not Completed

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

E. Other Plans, Policies, 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 (MCL’s)*” in Title 22 of the CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCL’s. The narrative tastes and odors objective states: “*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*”

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at 40 C.F.R. 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 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 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.D (No discharge of hazardous waste).** This prohibition is based on CCR, Title 22, section 66261.1 *et seq*, which prohibits discharge of hazardous waste.
5. **Prohibition III.E (Average Daily Discharge Flow).** 40 C.F.R. section 122.45(2)(i) requires that, "...calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility." The Discharger collected flow data prior to adoption of Order R5-2016-0002, from January 2012 through March 2015, which showed that the Facility flow was generally less than 0.25 MGD. Furthermore, the Discharger utilized a site-specific groundwater model to evaluate plume capture of the groundwater treatment system and determined that plume capture could be maintained at pumping rates between 0.08 MGD and 0.25 MGD. Order R5-2016-0002 included flow as an effluent limit based on the actual production of the Facility. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as in Order R5-2016-0002.

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 best professional judgment (BPJ), in accordance with 40 C.F.R. section 125.3.

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

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

- c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works (POTW's) to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.
- d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

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

2. **Applicable Technology-Based Effluent Limitations**

- a. **Volatile Organic Compounds (VOC's).** LGAC treatment systems are commonly used to remove VOC's from extracted groundwater at cleanup sites. The Facility utilizes LGAC and is capable of dependably removing the groundwater contaminants to concentrations that are non-detectable by current analytical technology. Order R5-2016-0002 included a technology-based maximum daily effluent limitation (MDEL) for VOC constituents of concern, including benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, tetrachloroethylene, toluene, trichloroethylene, and xylene, based on the ability of the groundwater treatment technology to remove the groundwater contaminants to concentrations that are non-detectable by current analytical technology.

State Water Board Resolution 68-16 requires implementation of best practicable treatment and control (BPTC) to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the state. BPTC for groundwater cleanup of VOC's provides that the pollutants should be discharged at concentrations no higher than quantifiable levels for each pollutant. For the purposes of this Order, BPTC for VOC's requires meeting effluent limitations based on the minimum levels (ML's) defined in Appendix 4, Table 2a of the SIP. Several

discharges in the Central Valley, including the Discharger, have implemented BPTC groundwater treatment systems and have been able to consistently treat VOC's to concentrations below the SIP ML's.

According to the SIP, if no ML value is below the effluent limitation, the applicable ML value shall be the lowest ML value listed in Appendix 4 of the SIP. VOC concentrations below the ML's are generally considered unquantifiable. Therefore, application of technology-based effluent limitations for VOC's at groundwater cleanup sites requires the effluent to meet ML's.

With respect to the specific discharges permitted herein, the following have been considered as required in 40 C.F.R. section 125.3 for establishing effluent limitations based on BPJ:

- i. **Appropriate Technology for Category or Class of Discharges.** LGAC is commonly used to remove VOC's from extracted groundwater at cleanup sites. Properly operated and maintained systems perform reliably and ensure essentially complete removal of VOC's. The Discharger employs LGAC at the Facility.
- ii. **Unique Factors Relating to the Discharger.** The Discharger has not identified any unique factors that would justify discharges equaling or exceeding quantifiable concentrations of VOC's.
- iii. **Age of Equipment.** The Discharger has not identified any concerns related to the ability to treat the contaminated groundwater due to the age of the equipment.
- iv. **Non-Water Quality Environmental Impacts.** The LGAC should reliably remove VOC's to concentrations less than 0.5 µg/L and should not create additional non-water quality impacts (i.e., air emissions), or undue financial costs for the Discharger.

LGAC is an appropriate technology for VOC removal from extracted groundwater. The above supports the conclusion that the Discharger can meet an MDEL of 0.5 µg/L. Therefore, an MDEL for VOC's of 0.5 µg/L is established in this Order to reflect BPTC and BPJ.

- b. **Total Petroleum Hydrocarbons (Gasoline Range).** The SIP does not specify an ML for total petroleum hydrocarbons (gasoline range). Therefore, this Order retains an MDEL of 50 µg/L, from Order R5-2016-0002, which reflects the commonly achieved reporting level (RL) for this constituent.

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

Table F-6. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	MDEL 50
Volatile Organic Compounds (see table note 1. below)	µg/L	MDEL 0.5

Table F-6 Notes:

- Includes all VOC's identified as constituents of concern in the influent groundwater, including benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.

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 WLA's 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 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for MUN.

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

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

- a. **Receiving Water and Beneficial Uses.** The Facility discharges to a San Joaquin County storm drain located at Lincoln Center, which flows approximately 2 miles and terminates at a pump station operated and maintained by San Joaquin County at the head of Fourteen Mile Slough. Fourteen Mile Slough is tidally influenced such that the upper reaches can be inundated during high tide and dry during low tide. Fourteen Mile Slough is within the eastern portion of the Sacramento-San Joaquin Delta and a tributary to the San Joaquin River within the Stockton Ship Channel. The distance from the head of Fourteen Mile Slough to the confluence with the San Joaquin River is approximately 7 miles.

The Sacramento-San Joaquin Delta is vital to California as it comprises over 700 miles of interconnected waterways and encompasses 1,153 square miles. The Sacramento-San Joaquin Delta is home to over 280 species of birds and more than 50 species of fish, making it one of the most ecologically important aquatic habitats in the state. Drinking water for

over 25 million Californians is pumped from the Sacramento-San Joaquin Delta via the State Water Project, Central Valley Water Project, and local water intakes. The Sacramento-San Joaquin Delta supports California's trillion-dollar economy with \$27 billion annually for agriculture. Additionally, the Delta has 12 million user-days for recreation each year.

Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.

- b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from April 2017 through March 2020, which includes effluent and ambient background data submitted in SMR's.
- c. **Assimilative Capacity/Mixing Zone**
 - i. **Regulatory Guidance for Dilution Credits and Mixing Zones.** The CWA directs states to adopt water quality standards to protect the quality of their 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 C.F.R. parts 122.44 and 122.45). The U.S. EPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the U.S. EPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) (TSD).

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

generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge.”

For priority pollutants, the SIP supersedes the Basin Plan mixing zone provisions. Section 1.4.2 of the SIP states, in part, “... *with the exception of effluent limitations derived from TMDL’s, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers...The applicable priority pollutant criteria and objectives are to be met through a water body except within any mixing zone granted by the Regional Board. **The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis.** The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board.” [emphasis added]*

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

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

A: 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. **Receiving Water Characteristics.** Fourteen Mile Slough is a dead end, tidally influenced slough within the eastern portion of the Sacramento-San Joaquin Delta. The eastern portion of the Sacramento-San Joaquin Delta is listed as impaired for numerous pollutants, including unknown toxicity. The storm drain outfall, which conveys the treated groundwater effluent, discharges to Fourteen Mile Slough via the SJCPS #1. During a site visit in November 2004, Central Valley Water Board staff observed some pooled water but no discernable receiving water flow immediately downgradient in the vicinity of this outfall location. Further downgradient, staff observed increasing volumes of water in Fourteen Mile Slough, likely under tidal influence. During a site visit on 30 August 2010 performed by PG Environmental on behalf of the Central Valley Water Board, the pump station was not discharging to Fourteen Mile Slough; however, some flow was noted in Fourteen Mile Slough downstream of the pump station. During a site visit on 22 October 2018, Central Valley Water Board staff noted that water from the outfall only reaches the main part of Fourteen Mile Slough during high flows. Considering the hydraulic characteristics of the receiving water, results of effluent and ambient receiving water monitoring, and the location of the discharge outfall to the beginning of Fourteen Mile Slough, the Central Valley Water Board has evaluated the need for WQBEL’s for pollutants without benefit of dilution in this Order, with the exception of arsenic and barium.

- iii. **Dilution/Mixing Zone Study Results.** The Basin Plan contains specific water quality objectives for arsenic and barium for the Sacramento-San Joaquin Delta. On 25 September 2009, the Discharger submitted a *Work Plan for Dilution/Mixing Zone Study for Arsenic and Barium, Lincoln Center, Stockton, California* (Work Plan), detailing how the Discharger planned to conduct a dilution/mixing zone study for arsenic and barium in Fourteen Mile Slough. The study was performed in accordance with the SIP, U.S. EPA's *Water Quality Standards Handbook, 2nd Edition* (updated July 2007), and the TSD. The study consisted of a field survey of the receiving water (to identify the intakes or outfalls in the proposed mixing zone), and an empirical study of arsenic and barium concentrations along Fourteen Mile Slough (to characterize the extent of dilution). Tidally influenced receiving waters, such as Fourteen Mile Slough, exhibit complex mixing behavior and unsteady hydraulics. Fourteen Mile Slough generally experiences two high tides and two low tides during each tidal cycle, and each tidal cycle lasts approximately 24.8 hours. Periods of "spring" and "neap" tides occur in conjunction with the lunar cycle and refer to the tidal range or amplitude. During spring tides, the high tides are higher, and the low tides are lower, while during neap tides, the range is more confined.

The dilution/mixing of constituents in Fourteen Mile Slough is complex because flow direction along Fourteen Mile Slough reverses with tides and flow is unsteady. Therefore, the study was designed to provide empirical dilution data and the critical design conditions monitored were based on the tides. There is no upstream flow in Fourteen Mile Slough during non-storm events, so only tidal flushing is available for dilution. To meet the critical design conditions when dilution and mixing are at a minimum, the study was conducted while a neap tide cycle was occurring and during a period of no rainfall, so there were no storm water flows to dilute the discharge. The reason for conducting the study during a neap tide cycle is that over the course of an entire neap tide cycle, it is presumed that the tides provide less dilution (due to lower tidal amplitude) than all other tidal cycles. During this neap tide cycle, a slack water condition occurs at low tide. The slack water condition produces little or no horizontal motion of receiving waters, which is considered the critical design condition or minimum occurrence of dilution and mixing.

On 28 and 29 September 2009, during the neap tide cycle, the dilution/mixing zone study was performed. The study consisted of multiple components, including:

- (a) Field survey of Fourteen Mile Slough from the outfall of SJPCS #1 to the Village Marina;

- (b) Composite sampling at the outfall of SJCPS #1, Footbridge, Riverbank Park, Village Marina, and Juggler's Island stations;
- (c) Grab sampling of the system effluent and I-5 overpass station;
- (d) Water levels recorded by pressure transducer at all monitoring locations except Juggler's Island station;
- (e) Depth cross-section measurements at the I-5 overpass station;
- (f) Velocity estimates at the I-5 overpass station;
- (g) Continuous conductivity measurements at the I-5 overpass station;
- (h) Conductivity transects at the Footbridge and I-5 overpass stations; and
- (i) Field screening of grab samples for conductivity, pH, and temperature.

Results of these study components are further detailed in the *Revised Fourteen-Mile Slough Dilution/Mixing Zone Study, Lincoln Center, Stockton, California* (prepared by LFR, Inc, 17 November 2009). During the field survey of Fourteen Mile Slough, it was observed that the Alexandria Place pump station was discharging intermittently during the study. Discharges lasted approximately 5 minutes and occurred every 90 minutes. The estimated total daily flow from this discharge is 99,000 gallons per day. Analysis of a grab sample indicated that arsenic and barium concentrations were 16 µg/L and 150 µg/L, respectively, from this discharge. These analytical results are greater than analytical results from samples collected upstream of the discharge at the Footbridge. Therefore, the discharge from the Alexandria Place pump station may, if at all, slightly reduce the calculated dilution by increasing the concentrations of arsenic and barium present in Fourteen Mile Slough.

Water levels recorded at the Footbridge, I-5 overpass, Riverbank Park, and Village Marina indicated all stations are tidally influenced and tidally ranged within 3 feet. The outfall of SJCPS #1 was not tidally influenced during the study period. Conductivity measurements transecting the Footbridge and I-5 overpass stations were collected to evaluate whether conditions varied appreciably over the width of Fourteen Mile Slough. The variability was approximately 0.5 percent, which is less than 8 percent, which is the cut off for considering the data representative of the entire width of the water body.

The following table presents the summary of analytical results for composite sampling as well as treatment system samples. Composite values for the I-5 overpass station were created by averaging the grab sample results. The effective dilution factor was calculated from the analytical data using the following equation:

$$DF = (C_e - C_a) / (C_p - C_a)$$

Where:

DF = Dilution factor

C_e = Effluent concentration

C_a = Background concentration at Juggler's Island

C_p = Concentration at given location

Table F-7. Analytical Results and Effective Dilution Factors

Sample Location	Arsenic (µg/L)	Barium (µg/L)	Dilution Factor for Arsenic	Dilution Factor for Barium
System Discharge (see table note 1. below)	11	290	--	--
Footbridge	8.6	130	1.4	2.8
I-5 Overpass	5.0 (see table note 2. below)	73 (see table note 2. below)	3.0	8.3
Riverbank Park	5.8	59	2.4	15.4
Village Marina	3.7	51	5.3	30.9
Juggler's Island (see table note 3. below)	2.0	43	--	--

Table F-7 Notes:

1. Effluent concentration (C_e).
2. Composite values for the I-5 station were created by averaging the grab sample results.
3. Background concentration (C_a).

Once the dilution factors were determined, effluent concentration allowance (ECA) values were calculated following step 1 of the process for developing WQBEL's in accordance with the steady state model described in section 1.4 of the SIP and chapter 5 of the TSD. 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:

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

$$ECA = C \text{ where } C \leq B$$

Where:

ECA = effluent concentration allowance

D = dilution credit

C= the priority pollutant criterion/objective

B= the ambient background concentration

The background concentrations of arsenic and barium were less than the applicable Basin Plan objectives; therefore, the effective dilution factor (DF) for the dilution credit (D) was substituted in the equation for the ECA that include dilution. The resulting ECA's based on dilution credits for arsenic and barium are as follows:

Table F-8. ECA Based on Dilution Credits

Sample Location	Dilution Factor for Arsenic	ECA for Arsenic (µg/L)	Dilution Factor for Barium	ECA for Barium (µg/L)
Footbridge	1.4	21	2.8	260
I-5 Overpass	3.0	34	8.3	570
Riverbank Park	2.4	29	15.4	980
Village Marina	5.3	52.4	30.9	1,900

Using the dilution factor as the “D” in the SIP’s ECA equation is conservative, because the maximum background constituent concentrations are essentially “double counted”. The maximum ambient background concentration is a factor in the calculation of the dilution factor and again accounted for in the SIP’s ECA equation.

The Discharger’s dilution/mixing zone study indicates that the San Joaquin River at Juggler’s Island (i.e., the confluence of Fourteen Mile Slough and the San Joaquin River) where the tidally influenced waters originate for Fourteen Mile Slough is a more representative location for ambient background receiving water sampling.

The study concluded that the edge of the mixing zone in Fourteen Mile Slough for arsenic and barium is located at the I-5 overpass. The Central Valley Water Board finds that the mixing zones and

dilution credits supported by the study continue to be applicable to the discharge. This Order allows a mixing zone for arsenic and barium approximately 0.9 miles downstream of the discharge at the I-5 overpass (Monitoring Location RSW-003) and includes effluent limitations allowing credit for dilution for arsenic and barium.

iv. **Evaluation of Available Dilution for Human Health Criteria.**

Section 1.4.2.2 of the SIP provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for the protection of human health, the TSD states that, “...*the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes.*” There are no drinking water intakes in the human health mixing zone. The human health criteria mixing zone meets the requirements of the SIP as follows:

- (a) *Shall not compromise the integrity of the entire water body* – 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 water body (such as a river segment), then mixing zones are likely to have little effect on the integrity of the water body as a whole, provided that the mixing zone does not impinge on unique or critical habitats.*”¹ The human health mixing zone is not applicable to aquatic life criteria. The proposed human health mixing zone extends 0.9 miles downstream of the discharge, constituting a small fraction of the receiving water reach. The human health mixing zone does not compromise the integrity of the entire waterbody.
- (b) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The human health mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.
- (c) *Shall not restrict the passage of aquatic life* – The human health mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.
- (d) *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 human health mixing zone is not applicable to aquatic life criteria. The

¹ TSD, pg. 33

mixing zone will not impact biologically sensitive or critical habitats.

- (e) *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; or cause nuisance* – The current discharge has not been shown to result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance. This Order requires end-of-pipe limitations for individual constituents and discharge prohibitions to prevent these conditions from occurring, which will ensure continued compliance with these mixing zone requirements. Therefore, the allowance of a human health mixing zone 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.
- (f) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The human health mixing zone is small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zone does not overlap mixing zones from other outfalls. There are no outfalls or mixing zones in the vicinity of the discharge.
- (g) *Shall not be allowed at or near any drinking water intake* – The human health mixing zone is not near a drinking water intake.

The human health mixing zone, therefore, complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the 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 considered the procedures and guidelines in U.S. EPA's *Water Quality Standards Handbook, 2nd Edition* (updated July 2007), section 5.1, and section 2.2.2 of the TSD. The SIP incorporates the same guidelines.

- v. **Evaluation of Available Dilution for Specific Constituents (Pollutant-by-Pollutant Evaluation).** The allowance of a mixing zone and dilution credits is a discretionary act by the Central Valley Water Board. When determining the appropriate dilution credits for a specific pollutant, several factors must be considered, such as available assimilative capacity, Facility performance, and best practicable treatment or control (BPTC). The Central Valley Water

Board has determined the allowable dilution credits on a constituent-by-constituent basis:

- (a) **Arsenic.** Based on monitoring at Juggler's Island (Monitoring Location RSW-004) between April 2017 and March 2020, the background concentration of arsenic ranged from 1.1 µg/L to 2.0 µg/L. The maximum background concentration of arsenic at Juggler's Island is below the Basin Plan water quality objective for arsenic of 10 µg/L indicating that assimilative capacity for arsenic is available in the receiving water. Based on the fact that assimilative capacity exists and the results of the dilution/mixing zone study, the Central Valley Water Board finds that a dilution factor of 3.0 is appropriate for arsenic. This dilution factor corresponds to a mixing zone extending approximately 0.9 miles and ending at the I-5 overpass.

Based on monitoring at the I-5 overpass (Monitoring Location RSW-003) between April 2017 and March 2020, the background concentration of arsenic ranged from 1.7 µg/L to 3.3 µg/L. The maximum background concentration of arsenic at the I-5 overpass is below the Basin Plan water quality objective for arsenic of 10 µg/L, which confirms the mixing zone study findings for arsenic.

- (b) **Barium.** Based on monitoring at Juggler's Island (Monitoring Location RSW-004) between April 2017 and March 2020, the background concentration of barium ranged from 20 µg/L to 46 µg/L. The maximum background concentration of barium at Juggler's Island is below the Basin Plan water quality objective for barium of 100 µg/L indicating that assimilative capacity for barium is available in the receiving water. Based on the fact that assimilative capacity exists and the results of the dilution/mixing zone study, the Central Valley Water Board finds that a dilution factor of 8.3 is appropriate for barium. This dilution factor corresponds to a mixing zone extending approximately 0.9 miles and ending at the I-5 overpass.

Based on monitoring at the I-5 overpass (Monitoring Location RSW-003) between April 2017 and March 2020, the background concentration of barium ranged from 38 µg/L to 57 µg/L. The maximum background concentration of barium at the I-5 overpass is below the Basin Plan water quality objective for barium of 100 µg/L, which confirms the mixing zone study findings for barium.

The Central Valley Board considered Facility performance and the receiving water's assimilative capacity for arsenic and barium in

determining the dilution needed. The consideration of these factors is necessary to avoid allocating an unnecessarily large portion of the receiving water’s assimilative capacity and possibly violating the Antidegradation Policy. Based on Facility performance, the full dilution credits are not needed for arsenic or barium and have been reduced to ensure compliance with the mixing zone provisions of the SIP. There is no new information providing reason to modify effluent limits for arsenic or barium. Therefore, this Order retains the performance-based effluent limits for arsenic and barium from Order R5-2016-0002. As shown in the table below, based on Facility performance, the Facility can meet more stringent WQBEL’s for arsenic and barium than with the full allowance of dilution. The mixing zone is as small as practicable for this Facility and fully complies with the SIP.

Table F-9. Limitations Based on Full Dilution Credits Versus Facility Performance

Parameter	Effluent Limitations (Full Dilution Credits)	Effluent Limitations (Facility Performance)
Arsenic, Total Recoverable	AMEL 35 MDEL 41	AMEL 23 MDEL 26
Barium, Total Recoverable	AMEL 662 MDEL 735	AMEL 415 MDEL 460

- vi. **Regulatory Compliance for Dilution Credits and Mixing Zones.**
 To fully comply with all applicable laws, regulations and policies of the state, the Central Valley Water Board-approved mixing zones and the associated dilution credits are based on the following:
 - (a) Mixing zones are allowed under the SIP provided all elements contained in section 1.4.2.2 are met. Based on the Discharger’s mixing zone study, the Central Valley Water Board has determined that these factors are met.
 - (b) 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 zones are as small as practicable.
 - (c) In accordance with section 1.4.2.2 of the SIP, the Central Valley Water Board has determined the mixing zones are as small as practicable and will not compromise the integrity of the entire water body, restrict the passage of aquatic life, dominate the water body, or overlap existing mixing zones from different outfalls. The mixing zones are small relative to the size of the

receiving water and do not overlap a mixing zone from a different outfall. Additionally, there are no known drinking water intakes located within the mixing zone.

- (d) The Central Valley Water Board is allowing mixing zones for human health constituents and has determined allowing such mixing zones will not cause acutely toxic conditions to aquatic life passing through the mixing zone.
- (e) The Central Valley Water Board has determined the discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under the federal or state endangered species laws, because the mixing zone is relatively small and acutely toxic conditions will not occur in the mixing zone. The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the Order establishes end-of-pipe effluent limitations and discharge prohibitions to prevent these conditions from occurring.
- (f) As required by the SIP, in determining the extent of or whether to allow mixing zones and dilution credits, the Central Valley Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zones and dilution credits are adequately protective of the beneficial uses of the receiving water.
- (g) The Central Valley Water Board has determined the mixing zones comply with the SIP for priority pollutants.
- (h) Section 1.4.2.2.B 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 full allowance of dilution is not needed or necessary for the Discharger to achieve compliance with effluent limitations for all constituents in this Order.
- (i) 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 zones, 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.

- (j) The Central Valley Water Board has determined that allowing dilution factors that exceed those proposed by this Order would not comply with the State Antidegradation Policy for receiving waters outside the allowable mixing zones. The State Antidegradation 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 Antidegradation Policy states:

“Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes 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 and barium have been adjusted for dilution credits based on Facility performance. The Central Valley Water Board determined the effluent limitations required by this Order will result in the Discharger implementing BPTC 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.

Therefore, the Central Valley Water Board has determined the effluent limitations established in the Order for arsenic and barium, which have been adjusted for dilution credits, are appropriate and necessary to comply with the Basin Plan, SIP, federal antidegradation regulations and the State Antidegradation 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 recoverable 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 SIP¹ and the CTR.² The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones (40 C.F.R. section 131.3(c)(4)(ii)). 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).³ 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.⁴ 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.⁵ 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.

- i. **Summary Findings**

The ambient hardness for Fourteen Mile Slough is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 30 mg/L to 370 mg/L based on collected ambient data from April 2017 through March 2020. Given the high variability in

¹ 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.

² 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)).

³ 40 C.F.R. section 131.38(c)(2)(iii) Table 4

⁴ 40 C.F.R. section 131.38(c)(2)(iii) Table 4, notes 1 and 2

⁵ 40 C.F.R. section 131.38(c)(2)(i)

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, Central Valley Water Board 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 30 mg/L (minimum) up to 370 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-10 for the following reasons.

- (a) Using the ambient receiving water hardness values shown in Table F-10 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- (b) 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, Central Valley Water Board staff has used the ambient hardness values shown in Table F-10 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.
- (c) Using the ambient receiving water hardness values shown in Table F-10 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- (d) Using the ambient hardness values shown in Table F-10 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-10. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable) (Acute)	CTR Criteria (µg/L, total recoverable) (Chronic)
Copper	320	42	25
Chromium III	320	4,500	540
Cadmium	270 (acute) 320 (chronic)	14	6.1
Lead	230	240	9.2
Nickel	320	1,300	140
Silver	140	7.2	--
Zinc	320	320	320

Table F-10 Notes:

1. **CTR Criteria (ug/L, total recoverable).** 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-10 represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1.
3. **The CTR’s hardness dependent metals criteria** equations vary differently depending on the metal, which results in differences in the range of ambient hardness values that may be used to develop effluent limitations that are protective of beneficial uses and comply with CTR criteria for all ambient flow conditions.

ii. **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 recoverable 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

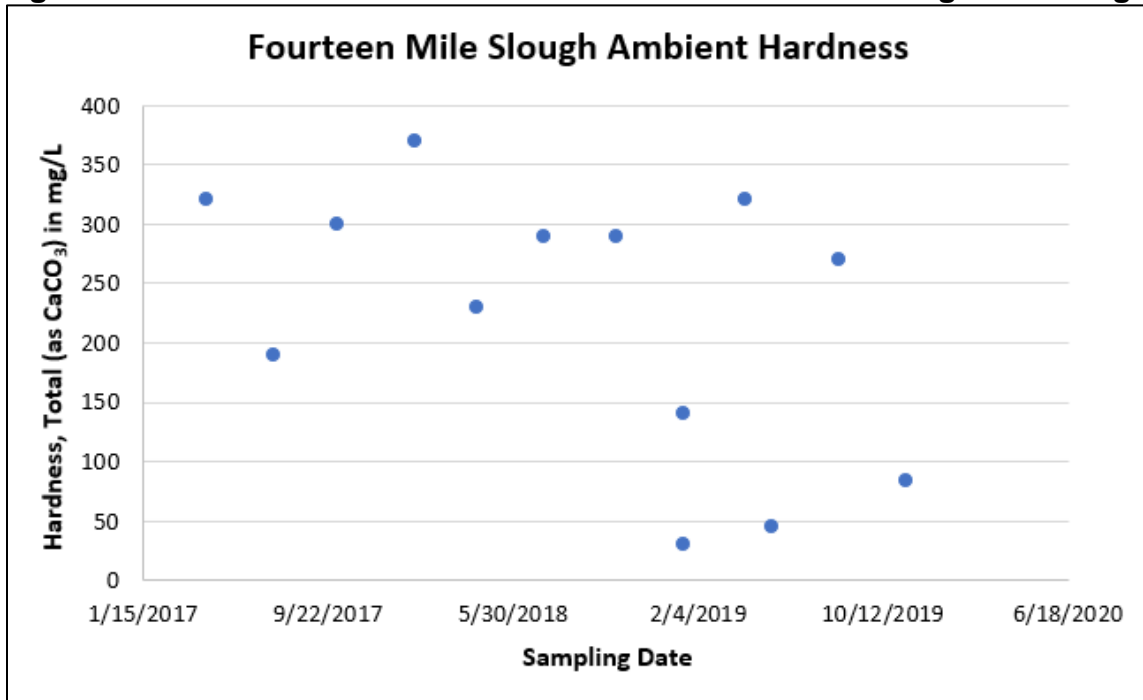
The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected “design” hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a three year period.¹ Design flows for aquatic life criteria include the 1Q10 and the 7Q10.

iii. **Ambient Conditions**

The ambient receiving water hardness varied from 30 mg/L to 370 mg/L, based on 13 samples from April 2017 through March 2020 (see Figure F-1).

¹ 40 C.F.R. section 131.38(c)(2)(iii) Table 4, notes 1 and 2

Figure F-1. Observed Ambient Hardness Concentrations 30 mg/L – 370 mg/L



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

iv. 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 the 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.

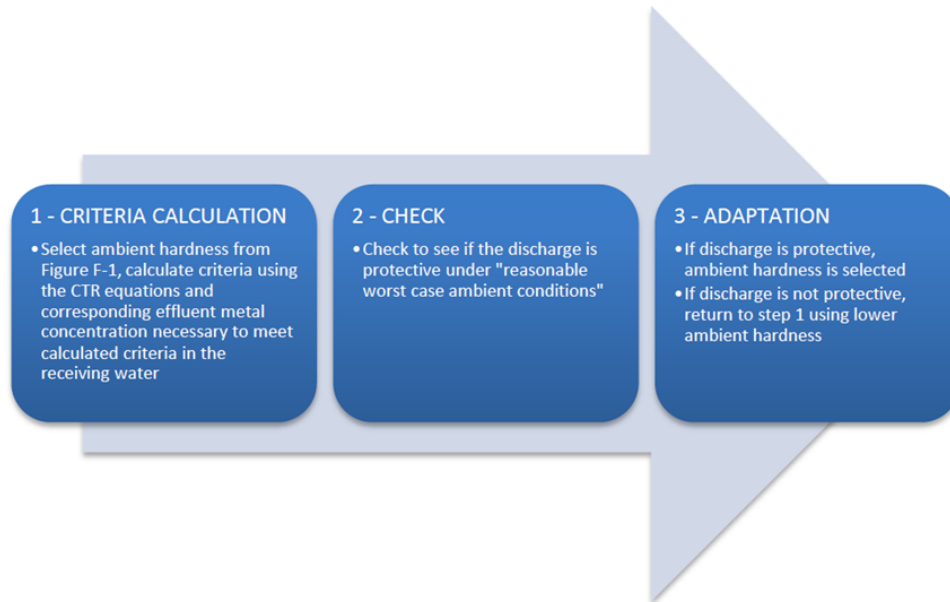
Reasonable worst-case ambient conditions:

- “Low receiving water flow.” CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions. As an estimate of the CTR design discharge conditions, effluent fractions of 1.0 and 0.9 have been selected to represent the 1Q10 and 7Q10 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. In this situation, an effluent fraction of 0.05 was selected to represent the high flow condition.
- “Low receiving water hardness.” The minimum receiving water hardness condition of 30 mg/L was selected to represent the reasonable worst-case receiving water hardness.
- “Background ambient metal concentration at criteria.” This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the Facility’s discharge). Based on data in the record, this is a design condition that does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

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

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

Figure F-2. Criteria Calculation CTR



1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 370 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.¹ This should not be confused with an effluent limit. Rather, it is the ECA, which is synonymous with the WLA defined by U.S. EPA as “a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water.”² 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 equation³ 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:

¹ SIP section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.

² U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.

³ U.S. EPA NPDES Permit Writers’ Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

- (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 step 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.

v. **Results of Iterative Analysis**

The iterative analyses for each CTR hardness-dependent metal result in the selected ambient hardness values shown in Table F-10, 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-11 below summarizes the numeric results for nickel based on an ambient hardness of 320 mg/L and a calculated ECA of 140 µg/L. Table F-12 below summarizes the numeric results for lead based on an ambient hardness of 230 mg/L and a calculated ECA of 9.2 µg/L. The analysis evaluated all flow conditions and the numeric values for the critical flow conditions are summarized in Tables F-11 and F-12, below. Ambient concentrations for nickel and lead are calculated using the worst-case downstream ambient conditions, which allows for a conservative assumption that will ensure the receiving water complies with CTR criteria. Under the "check" step, worst-case ambient receiving water conditions are used to test whether the effluent discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the iterative analyses show that the ambient hardness values selected using the three-step iterative process result in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-11 and F-12 below summarize the critical flow conditions. There are no effluent limitations for nickel or lead as they demonstrate no reasonable potential.

Table F-11. Verification of CTR Compliance for Nickel
Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Nickel Concentration (µg/L)	Complies with CTR?
1Q10	330	140	140	Yes
7Q10	300	130	130	Yes
Max receiving water flow	45	27	25	Yes

Table F-12. Verification of CTR Compliance for Lead
Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Lead Concentration (µg/L)	Complies with CTR?
1Q10	330	15	9.2	Yes
7Q10	300	13	8.3	Yes
Max receiving water flow	45	1.2	1.1	Yes

3. Determining the Need for WQBEL’s

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

a. **Constituents with Total Maximum Daily Loads (TMDL's).**

40 C.F.R. section 122.44(d)(1)(vii) provides: "*When developing water quality-based effluent limits under [section 122.44(d)(1)], the permitting authority shall ensure that: (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards; and (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to [Total Maximum Daily Loads regulations].*" U.S. EPA construes

40 C.F.R. section 122.44(d)(1)(vii)(B) to mean that "*when WLA's are available, they must be used to translate water quality standards into NPDES permit limits.*" 54 Fed. Reg. 23868, 23879 (June 2, 1989).

The Fourteen Mile Slough within the Sacramento-San Joaquin Delta is subject to TMDL's for diazinon and chlorpyrifos and methylmercury, and WLA's under those TMDL's are available. The Central Valley Water Board developed WQBEL's for these pollutants pursuant to 40 C.F.R. section 122.44(d)(1)(vii), which does not require or contemplate an RPA.

i. **Diazinon and Chlorpyrifos**

- (a) **WQO.** The Central Valley Water Board completed a TMDL for diazinon and chlorpyrifos in the Sacramento-San Joaquin Delta and amended the Basin Plan to include diazinon and chlorpyrifos WLA's and water quality objectives. The Basin Plan Amendment for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta was adopted by the Central Valley Water Board on 23 June 2006 and became effective on 10 October 2007.

The amendment modified Basin Plan Chapter III (Water Quality Objectives) to establish site-specific numeric objectives for diazinon and chlorpyrifos in the Delta waterways and identified the requirements to meet the additive formula already in Basin Plan Chapter IV (Implementation) for the additive toxicity of diazinon and chlorpyrifos.

The Basin Plan states at section 4.5.5.3(6) that "*The waste load allocations (WLA) for all NPDES-permitted dischargers...shall not exceed the sum (S) of one (1) as defined below.*

$$S = C_d/WQO_d + C_c/WQO_c \leq 1.0$$

Where:

C_d = diazinon concentration in $\mu\text{g/L}$ of point source discharge for WLA...

C_c = chlorpyrifos concentration in $\mu\text{g/L}$ of point source discharge for the WLA...

WQO_d = acute or chronic diazinon water quality objective in $\mu\text{g/L}$.

WQO_c = acute or chronic chlorpyrifos water quality objective in $\mu\text{g/L}$.

Available samples collected within the applicable averaging period for the water quality objective will be used to determine compliance with the allocations and loading capacity. For purposes of calculating the sum (S) above, analytical results that are reported as 'non-detectable' concentrations are considered to be zero."

Appendix A of the Diazinon and Chlorpyrifos TMDL lists waterways subject to the TMDL and includes Fourteen Mile Slough.

- (b) **RPA Results.** Diazinon was not detected in the effluent based on one sample collected between April 2017 and March 2020. Diazinon was not detected in the receiving water based on four samples collected between April 2017 and March 2020.

Chlorpyrifos was not detected in the effluent based on one sample collected between April 2017 and March 2020. Chlorpyrifos was not detected in the receiving water based on four samples collected between April 2017 and March 2020.

Although diazinon and chlorpyrifos were not detected in the effluent or receiving water, due to the TMDL for diazinon and chlorpyrifos in the Sacramento-San Joaquin Delta, WQBEL's for these constituents are required. The TMDL WLA applies to all NPDES dischargers to Delta waterways and will serve as the basis for WQBEL's for this Facility.

- (c) **WQBEL's.** WQBEL's for diazinon and chlorpyrifos are required based on the TMDL for diazinon and chlorpyrifos for Sacramento-San Joaquin Delta waterways. Therefore, this Order includes effluent limits calculated based on the WLA's contained in the TMDL, as follows:

Average Monthly Effluent Limitation (AMEL)

$$S_{AMEL} = C_{d\ M-avg}/0.079 + C_{c\ M-avg}/0.012 \leq 1.0$$

Where:

$C_{d\ M-avg}$ = average monthly diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ M-avg}$ = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$

Maximum Daily Effluent Limitation (MDEL)

$$S_{MDEL} = C_{d\ D-max}/0.16 + C_{c\ D-max}/0.025 \leq 1.0$$

Where:

$C_{d\ D-max}$ = maximum daily diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ D-max}$ = maximum daily chlorpyrifos effluent concentration in $\mu\text{g/L}$

- (d) **Plant Performance and Attainability.** Diazinon and chlorpyrifos were not detected in the effluent. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Mercury**

- (a) **WQO.** The Basin Plan contains fish tissue objectives for all Sacramento-San Joaquin Delta waterways listed in Appendix 43 of the Basin Plan, which states, "...the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length." The Delta Mercury Control Program contains aqueous methylmercury WLA's that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 ng/L (the concentration of methylmercury in water to meet the fish tissue objective). The Facility is allocated 0.010 grams/year of methylmercury by 31 December 2030, as listed in Table IV-7B of the Basin Plan.

The CTR contains a human health criterion of 50 ng/L for total mercury for waters from which both water and aquatic

organisms are consumed. However, in 40 C.F.R. part 131, U.S. EPA 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 the use of the state’s narrative criterion.*” In the CTR, U.S. EPA 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). As shown in Table F-3, the beneficial uses applicable to Fourteen Mile Slough within the Sacramento-San Joaquin Delta include COMM and WILD; therefore, the Sport Fish Water Quality Objective is applicable. However, the mercury water quality objectives established in the Statewide Mercury Provisions do not supersede the site-specific numeric mercury water quality objectives established in the Basin Plan, and section IV.D.1 of the Statewide Mercury Provisions specifies that the implementation provisions do not apply to dischargers that discharge to receiving waters for which a mercury or methylmercury TMDL is established pertaining to the same beneficial use or uses. Consequently, this Order continues to implement the Basin Plan’s Delta Mercury Control Program for the control of methylmercury in the receiving water.

- (b) **RPA Results.** Section 1.3 of the SIP states, “*The RWQCB shall conduct the analysis in this section of each priority pollutant with an applicable criterion or objective, excluding priority pollutants for which a TMDL has been developed, to determine if a water quality-based effluent limitation is required in the Discharger’s permit.*” (emphasis added)

The maximum effluent concentration (MEC) for mercury was 0.58 ng/L based on 13 samples collected between April 2017 and March 2020. Mercury was not detected in the receiving

water based on four samples collected between April 2017 and March 2020.

The MEC for methylmercury was 0.034 ng/L based on 13 samples collected between April 2017 and March 2020. The maximum observed receiving water methylmercury concentration was 0.095 ng/L based on four samples collected between April 2017 and March 2020.

- (c) **WQBEL's.** The Basin Plan's Delta Mercury Control Program includes WLA's for facilities in the Delta, including for the Discharger. This Order contains a final WQBEL for methylmercury based on the WLA. Effective 31 December 2030, the total calendar annual methylmercury load shall not exceed 0.010 grams.
 - (d) **Plant Performance and Attainability.** A compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in section VI.C.7.a of this Order. The final WQBEL's for methylmercury are effective 31 December 2030.
- b. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an in-stream 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. **Salinity**
 - (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, 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 NAWQC 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-13. Salinity Water Quality Criteria/Objectives

Parameters	Secondary MCL Recommended Level.	Secondary MCL Upper Level	Secondary MCL Short-term Maximum	U.S. EPA NAWQC	Maximum Calendar Annual Average Effluent Concentration	Maximum Daily Effluent Concentration
EC (µmhos/cm) or TDS (mg/L)	EC 900 or TDS 500	EC 1,600 or TDS 1,000	EC 2,200 or TDS 1,500	N/A	EC 806 or TDS 533	EC 961 or TDS 590
Sulfate (mg/L)	250	500	600	N/A	48	48
Chloride (mg/L)	250	500	600	860 1-hour / 230 4-day	46	46

Table F-13 Notes:

- 1. Agricultural Water Quality Objectives.** Applicable agricultural water quality objectives vary. Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality Objectives, section 4.2.2.1.9 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.
- 2. Secondary MCL's.** Secondary MCL's are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
- 3. Bay-Delta Plan Water Quality Objective.** The Bay-Delta Plan Water Quality Objective has not been applied because of distance between the discharge to Fourteen Mile Slough and the compliance points in the San Joaquin River at Brandt Bridge or Prisoner's Point.
- 4. 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.
- 5. Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum, or when expressed as total dissolved solids is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum.

5. **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(b) **RPA Results**

(1) **Chloride.** Based on one effluent sample collected from April 2017 through March 2020, the maximum observed effluent chloride concentration was 46 mg/L. These levels do not exceed the Secondary MCL or NAWQC. Background concentrations in Fourteen Mile Slough ranged from 23 mg/L to 140 mg/L based on four samples collected by the Discharger from April 2017 through March 2020.

(2) **Electrical Conductivity or Total Dissolved Solids.** Electrical conductivity concentrations in the effluent ranged from 548 μ mhos/cm to 961 μ mhos/cm, with a maximum calendar annual average of 806 μ mhos/cm, based on 37 samples collected from April 2017 through March 2020. These levels do not exceed the Secondary MCL. The background receiving water electrical conductivity ranged from 180 μ mhos/cm to 730 μ mhos/cm based on five samples collected from April 2017 through March 2020.

Total dissolved solids concentrations in the effluent ranged from 470 mg/L to 590 mg/L, with a maximum calendar annual average of 533 mg/L. These levels do not exceed the Secondary MCL. Background total dissolved solids concentrations in Fourteen Mile Slough ranged from 100 mg/L to 390 mg/L based on four samples collected from April 2017 through March 2020.

(3) **Sulfate.** Based on one effluent sample collected from April 2017 through March 2020, the maximum observed effluent sulfate concentration was 48 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Fourteen Mile Slough ranged from 13 mg/L to 52 mg/L based on four samples collected by the Discharger from April 2017 through March 2020.

(c) **WQBEL's.** As discussed above, the discharge does not have reasonable potential to cause or contribute to an instream excursion of water quality objectives for salinity. However, allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order retains a performance-based AMEL of 1,500 μ mhos/cm for EC from Order R5-2016-0002. Furthermore, in order to ensure that the

Discharger will continue to control the discharge of salinity, this Order requires continued implementation of its Salinity Evaluation and Minimization Plan.

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

- (d) **Plant Performance and Attainability.** Analysis of effluent electrical conductivity data shows that immediate compliance with the AMEL of 1,500 $\mu\text{mhos/cm}$ 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, barium, pH, and total dissolved solids. 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.** The Primary MCL for arsenic is 10 µg/L, which is used to interpret the Basin Plan's chemical constituents objective for the protection of the MUN beneficial use.

The Basin Plan includes a site-specific objective for arsenic for the Sacramento-San Joaquin Delta of 10 µg/L, as a maximum concentration.

- (b) **RPA Results.** The MEC for arsenic was 12 µg/L based on 36 samples collected from April 2017 through March 2020. The maximum arsenic concentration observed in the receiving water was 2 µg/L based on four samples collected from April 2017 through March 2020. Therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL and Basin Plan objective.
- (c) **WQBEL's.** The receiving water contains assimilative capacity for arsenic; therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a human health dilution credit of 3.0:1 may be allowed in the development of WQBEL's for arsenic. However, the Central Valley Water Board finds that granting of this dilution credit would allocate an unnecessarily large portion of the receiving water's assimilative capacity for arsenic and could violate the Antidegradation Policy. Therefore, this Order retains the performance-based AMEL of 23 µg/L from Order R5-2016-0002 and establishes an MDEL of 26 µg/L based on an updated coefficient of variation (CV) and updated assimilative capacity.
- (d) **Plant Performance and Attainability.** Analysis of effluent arsenic data shows that immediate compliance with the WQBEL's is feasible.

ii. **Barium**

- (a) **WQO.** The Primary MCL for barium is 1,000 µg/L, which is used to interpret the Basin Plan's chemical constituents objective for the protection of the MUN beneficial use.

The Basin Plan includes a site-specific objective for barium for the Sacramento-San Joaquin Delta of 100 µg/L, as a maximum concentration.

- (b) **RPA Results.** The maximum observed effluent concentration for barium was 360 µg/L based on 36 samples collected from April 2017 through March 2020. The maximum barium

concentration observed in the receiving water was 46 µg/L based on four samples collected from April 2017 through March 2020. Therefore, barium in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the site-specific Basin Plan objective.

- (c) **WQBEL's.** The receiving water contains assimilative capacity for barium; therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a human health dilution credit of 8.3:1 may be allowed in the development of WQBEL's for barium. However, the Central Valley Water Board finds that granting of this dilution credit would allocate an unnecessarily large portion of the receiving water's assimilative capacity for barium and could violate the Antidegradation Policy. Therefore, this Order retains the performance-based AMEL of 415 µg/L from Order R5-2016-0002 and establishes an MDEL of 460 µg/L based on an updated CV and updated assimilative capacity.
- (d) **Plant Performance and Attainability.** Analysis of effluent barium data shows that immediate compliance with the WQBEL's is feasible.

iii. **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.** Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level 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.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH 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 has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without*

using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)."

U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.*" (TSD, p. 50)

The effluent pH ranged from 6.52 to 7.31 while the receiving water pH at Monitoring Locations RSW-002 and RSW-003 ranged from 6.76 to 7.84. The pH in the discharge does not exceed the Basin Plan water quality objectives; however, due to the nature of the treated groundwater discharge from the Facility and the inherently variable pH, the Central Valley Water Board has determined that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective. Therefore, WQBEL's for pH are included in this Order.

- (c) **WQBEL's.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Effluent pH ranged from 6.52 to 7.31. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

- a. This Order includes WQBEL's for arsenic, barium, chlorpyrifos, diazinon, electrical conductivity, methylmercury, and pH. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

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

Where:

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

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

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

For non-priority pollutants with Secondary MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the long-term average (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 ECA's are converted to equivalent LTA's (i.e., LTA_{acute} and LTA_{chronic}) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. **Human Health Criteria.** For constituents with human health criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

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

Where:

- mult_{AMEL} = statistical multiplier converting minimum LTA to AMEL
- mult_{MDEL} = statistical multiplier converting minimum LTA to MDEL
- M_A = statistical multiplier converting acute ECA to LTA_{acute}
- M_C = statistical multiplier converting chronic ECA to LTA_{chronic}

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

Table F-14. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Maximum Daily Effluent Limitations
Arsenic, Total Recoverable	µg/L	23	26
Barium, Total Recoverable	µg/L	415	460
Chlorpyrifos	µg/L	(see table note 1. below)	(see table note 2. below)
Diazinon	µg/L	(see table note 1. below)	(see table note 2. below)
Electrical Conductivity @ 25°Celsius	µmhos/cm	1,500	--
Methylmercury	grams/year	0.010 (see table note 3. below)	--

Table F-14 Notes:

1. Average Monthly Effluent Limitation (AMEL):

$$S_{AMEL} = C_d M_{-avg}/0.079 + C_c M_{-avg}/0.012 \leq 1.0$$

Where:

$C_{d\ M-avg}$ = average monthly diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ M-avg}$ = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$

2. Maximum Daily Effluent Limitation (MDEL):

$$S_{MDEL} = C_{d\ D-max}/0.16 + C_{c\ D-max}/0.025 \leq 1.0$$

Where:

$C_{d\ D-max}$ = maximum daily diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ D-max}$ = maximum daily chlorpyrifos effluent concentration in $\mu\text{g/L}$

3. The effluent calendar year annual methylmercury load shall not exceed 0.010 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

a. pH:

i. 6.5 Standard Units (SU) as an instantaneous minimum.

ii. 8.5 SU as an instantaneous maximum.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct WET testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (MRP) (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 Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at section 3.1.20) The Basin Plan also states that, “...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Acute WET is not a priority pollutant. Therefore, due to the site-specific conditions of the

discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility treats groundwater containing toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

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

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

70 percent, minimum for any one bioassay; and

90 percent, median for any three consecutive bioassays.

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page section 3.1.20) Table F-15, below, includes chronic WET date for testing performed by the Discharger from April 2017 through March 2020. This data was used 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.

Table F-15. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow Pimephales promelas Survival (TUc)	Fathead Minnow Pimephales promelas Growth (TUc)	Water Flea Ceriodaphnia dubia Survival (TUc)	Water Flea Ceriodaphnia dubia Reproduction (TUc)	Green Algae Selenastrum capricornutum Growth (TUc)
13 April 2017	1	1	1	1	1
14 November 2017	1	1	1	>1	1
18 January 2018	--	--	1	1	--
19 April 2018	1	1	1	1	>1
21 June 2018	--	--	1	1	>1
31 July 2018	--	--	--	--	>1
30 August 2018	--	--	--	--	1
13 September 2018	--	--	--	--	1
13 November 2018	1	1	1	1	1
10 January 2019	1	1	--	--	--
9 April 2019	1	1	1	1	--
13 April 2019	--	--	--	--	1
21 November 2019	1	1	1	1	1

- i. **RPA.** No dilution has been granted for chronic WET. Chronic toxicity testing results exceeding 1 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. Based on chronic toxicity testing conducted between April 2017 and March 2020, the maximum chronic toxicity result was >1 TUc on 19 April 2018 with a percent effect of 48.74 percent for *S. capricornutum* growth. In addition to the 19 April 2018 result, testing conducted on 14 November 2017 returned a result of >1 TUc and a percent effect of 37.56 percent for *C. dubia* growth.

As described in the Discharger’s *Second Semiannual 2017 Whole Effluent Toxicity Testing Summary Report* submitted to the Central Valley Water Board on 29 January 2018, the 14 November 2017 exceedance occurred concurrently with the detection of cis-1,2-dichloroethene in a November 2017 effluent sample. Geosyntec proposed replacing the GAC in the last LGAC vessel to address the cis-1,2-dichloroethene reported in the effluent; however, following replacement of the GAC and an 11 December 2017 sampling event, the Discharger determined that the GAC replacement did not resolve the problem. Following further investigation, Geosyntec discovered that a leaking valve possibly introducing untreated water might have been the cause of the observed toxicity. The valve was replaced, and the effluent was resampled on 11 January 2018. As

indicated in the *First Semiannual 2018 Whole Effluent Toxicity Testing Summary Report* submitted by the Discharger on 25 July 2018, laboratory results indicated no adverse effects to *C. dubia* reproduction resulting from exposure to the 11 January 2018 effluent sample.

Following the 19 April 2018 exceedance of the chronic WET monitoring trigger, the Discharger conducted four accelerated monitoring tests for *S. capricornutum* growth. The results of the four accelerated monitoring tests did not exceed the trigger of 1 TUC and a percent effect of 25 percent at 100 percent effluent.

Although chronic toxicity results collected from April 2017 through March 2020 exceeded 1 TUC and a percent effect at 100 percent effluent of 25 percent, the Discharger has performed modifications to the treatment system to address effluent toxicity and prevent it from reoccurring. Furthermore, chronic toxicity testing results reported since April 2018, including four accelerated monitoring tests for *S. capricornutum* growth, have not exceeded the threshold of 1 TUC and a percent effect of 25 percent at 100 percent effluent. Therefore, the Central Valley Water Board has determined that the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires AMEL's and MDEL's for all dischargers other than POTW's, unless impracticable.

Water quality objectives in the Basin Plan for pH are applied directly as instantaneous effluent limitations. Final effluent limitations for VOC's and total petroleum hydrocarbons (gasoline range) are technology-based effluent limitations that have been established as MDEL's based on the ML's in the SIP and/or current, commonly achieved RL's.

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).

All effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2016-0002.

- a. **Flow.** Order R5 2016-0002 included flow as an effluent limit based on the actual production of the Facility. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

4. Antidegradation Policies

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

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on total petroleum hydrocarbons (gasoline range) and VOC's. Restrictions on these constituents are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

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 WQBEL's 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-16. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis ¹
pH	Standard Units	Instantaneous Max 8.5 Instantaneous Min 6.5	BP
Arsenic, Total Recoverable	µg/L	AMEL 23 MDEL 26	BP
Barium, Total Recoverable	µg/L	AMEL 415 MDEL 460	BP
Chlorpyrifos	µg/L	(see table notes 2. and 3. below)	TMDL
Diazinon	µg/L	(see table notes 2. and 3. below)	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,500	PB
Methylmercury	grams/year	AMEL 0.010 (see table note 4. below)	TMDL
Total Petroleum Hydrocarbons (Gasoline Range)	µg/L	MDEL 50	ML
Volatile Organic Compounds (see table note 5. below)	µg/L	MDEL 0.5	ML
Acute Toxicity	Percent Survival	MDEL 70/90 (see table notes 6. and 7. below)	BP

Table F-16 Notes:

- BP – Based on water quality objectives contained in the Basin Plan.
TMDL – Based on the WLA's in the applicable TMDL.
PB – Based on Facility performance.
ML – Based on the technical capability of the groundwater treatment system to dependably remove the groundwater contaminants to concentrations that are non-detect by current analytical technology.

- Average Monthly Effluent Limitation (AMEL):

$$S_{AMEL} = C_d M\text{-avg}/0.079 + C_c M\text{-avg}/0.012 \leq 1.0$$

Where:

$C_{d\ M\text{-avg}}$ = average monthly diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ M\text{-avg}}$ = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$

3. Maximum Daily Effluent Limitation (MDEL):

$$S_{\text{MDEL}} = C_{d\ D\text{-max}}/0.16 + C_{c\ D\text{-max}}/0.025 \leq 1.0$$

Where:

$C_{d\ D\text{-max}}$ = maximum daily diazinon effluent concentration in $\mu\text{g/L}$

$C_{c\ D\text{-max}}$ = maximum daily chlorpyrifos effluent concentration in $\mu\text{g/L}$

4. The effluent calendar year annual methylmercury load shall not exceed 0.010 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.
5. Includes all VOC's identified as constituents of concern in the influent groundwater, including benzene, 1,2-dichloroethane, 1,1-dichloroethylene, ethylbenzene, methyl tertiary butyl ether, tetrachloroethylene, toluene, trichloroethylene, cis-1,2-dichloroethylene, and xylenes.
6. 70 percent minimum of any one bioassay.
7. 90 percent median for any three consecutive bioassays.

E. Interim Effluent Limitations

The State Water Board's Resolution 2008-0025 "*Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*" (Compliance Schedule Policy) requires the Central Valley Water Board to establish interim numeric effluent limitations in this Order for compliance schedules longer than 1 year. As discussed in section VI.B.7 of this Fact Sheet, the Central Valley Water Board is approving a compliance schedule longer than 1 year for methylmercury. The Compliance Schedule Policy requires that interim effluent limitations be based on current Facility performance or existing permit limitations, whichever is more stringent. Consistent with the Delta Mercury Control Program, this Order includes interim effluent limitations for total mercury based on Facility performance.

1. **Compliance Schedule for Methylmercury.** This Order contains a final effluent limitation for methylmercury based on the Basin Plan's Delta Mercury Control Program that became effective on 20 October 2011. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application demonstrates the need for additional time to implement actions to comply with the final effluent limitations, as described below. Therefore, a compliance

schedule for compliance with the effluent limitations for methylmercury is established in the Order.

A compliance schedule is necessary because the Discharger must implement actions, including a Phase 1 Methylmercury Control Study and possible upgrades to the Facility, to comply with the final effluent limitations.

The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The Discharger conducted quarterly monitoring for mercury and methylmercury during the term of Order R5-2016-0002.

The compliance schedule is as short as possible. The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. Therefore, at this time, it is uncertain what measures must be taken to consistently comply with the WLA for methylmercury. The interim effluent limits and final compliance date may be modified at the completion of Phase 1.

Interim performance-based limitations have been included in this Order. The interim limitations were determined as described in section IV.E.2, below, and are in effect until the final limitations take effect. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

- 2. Interim Limits for Total Mercury.** The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or previous final permit limitations, whichever is more stringent. When feasible, interim limitations must correspond with final permit effluent limitations with respect to averaging bases (e.g., AMEL, MDEL, AWEL, etc.) for effluent limitations for which compliance protection is intended.

The interim effluent limitations for total mercury are based on Facility performance. The Delta Mercury Control Program requires facilities to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges.

This Order retains the interim performance-based effluent limitation for total mercury from Order R5-2016-0002, which is consistent with the intent of the TMDL to not penalize dischargers for early actions to reduce mercury. The interim effluent limitation for total mercury shall apply in lieu of the final effluent limitation for methylmercury.

The Central Valley Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with final effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

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 bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.
 - a. **Temperature.** This Order includes a receiving water limitation for temperature requiring that the natural temperature of the receiving water not be increased by more than 5°F, consistent with the water quality objective for temperature in the Basin Plan. The Central Valley Water Board generally determines compliance with this requirement based on the difference in temperature at the upstream and downstream receiving water monitoring locations. The Facility discharges to a storm drain that terminates at the head of Fourteen Mile Slough. Therefore, there is no physical upstream receiving

water monitoring location and it is infeasible to collect upstream receiving water samples to determine compliance with this receiving water limitation. However, because the discharge from the Facility is composed of treated groundwater, the discharge is not expected to cause negative impacts on the beneficial uses in Fourteen Mile Slough. This Order requires downstream receiving water monitoring at Monitoring Location RSW-002 for temperature to characterize the impacts of the discharge in Fourteen Mile Slough.

- b. Turbidity.** The Central Valley Water Board generally determines compliance with this requirement based on the observed turbidity at the upstream and downstream receiving water monitoring locations. The Facility discharges to a storm drain that terminates at the head of Fourteen Mile Slough. Therefore, there is no physical upstream receiving water monitoring location and it is infeasible to collect upstream receiving water samples to determine compliance with this receiving water limitation. However, because the discharge from the Facility is composed of treated groundwater, the discharge is not expected to cause negative impacts on the beneficial uses in Fourteen Mile Slough. This Order requires downstream receiving water monitoring at Monitoring Location RSW-002 for turbidity to characterize the impacts of the discharge in Fourteen Mile Slough.

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.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 is currently underway. Phase 2 begins after the Phase 1 Delta Mercury Control Program Review and Board approval. As a result of the Phase 1 Delta Mercury Control Program Review, changes may be needed to final allocations, implementation and monitoring requirements, and compliance schedules. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.
- b. **Whole Effluent Toxicity (WET).** This Order requires the Discharger to investigate the causes of and identify corrective actions to reduce or eliminate effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a new chronic toxicity limitation, a revised acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.
- 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 recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- d. **Performance-based Effluent Limitations for Arsenic and Barium.** The groundwater treatment system currently comprises 21 A-Zone and 10 B-Zone groundwater extraction wells. In summer 2008, samples were taken at the treatment system influent for the A-Zone and B-Zone aquifers separately by selectively running the extraction wells. The sampling plan implemented ran each zone exclusively for an extended period of time to flush the conveyance line and achieve an overall equilibrium of the metals in each zone prior to sampling. The sampling was performed to determine relative contributions of arsenic and barium. The sampling found an arsenic concentration of 6.8 µg/L in the A-Zone wells and 21 µg/L in the B-Zone wells. The sampling found a barium concentration of 270 µg/L in the A-Zone wells and 410 µg/L in the B-Zone wells. These results indicate that the B-Zone wells contribute significantly more arsenic and barium than the A-Zone wells. Therefore, if the A-Zone wells are not pumped, effluent levels of arsenic and barium would be much higher than they have been historically. There is potential for a greater fraction of the discharge to be derived from B-Zone wells in the future because the A-Zone wells foul more often than the B-Zone wells and the need for pumping in the A-Zone wells may decrease as the size of the plume decreases. Therefore, the

calculation of the performance-based effluent limitations for arsenic and barium may need to be re-evaluated in the future, depending on the groundwater pumping schemes or relevant changes in either precipitation patterns or groundwater elevations. If the Discharger submits a report describing changes in the concentration of arsenic or barium in groundwater influent to the treatment system that are expected or encountered due to naturally occurring processes (e.g., significant changes in precipitation patterns, increases or decreases in groundwater elevations, or changes in the distribution of VOC's requiring adjustment of pumping rates or installation of additional extraction wells), this Order may be reopened to modify the performance-based effluent limitations for arsenic and/or barium.

- g. **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 \(CV-SALTS\)](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/) web page:
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity (WET) Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at section 3.1.20.) Based on whole effluent chronic toxicity testing performed by the Discharger from April 2017 through March 2020, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the

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

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

Figure F-3: WET Accelerated Monitoring Flow Chart

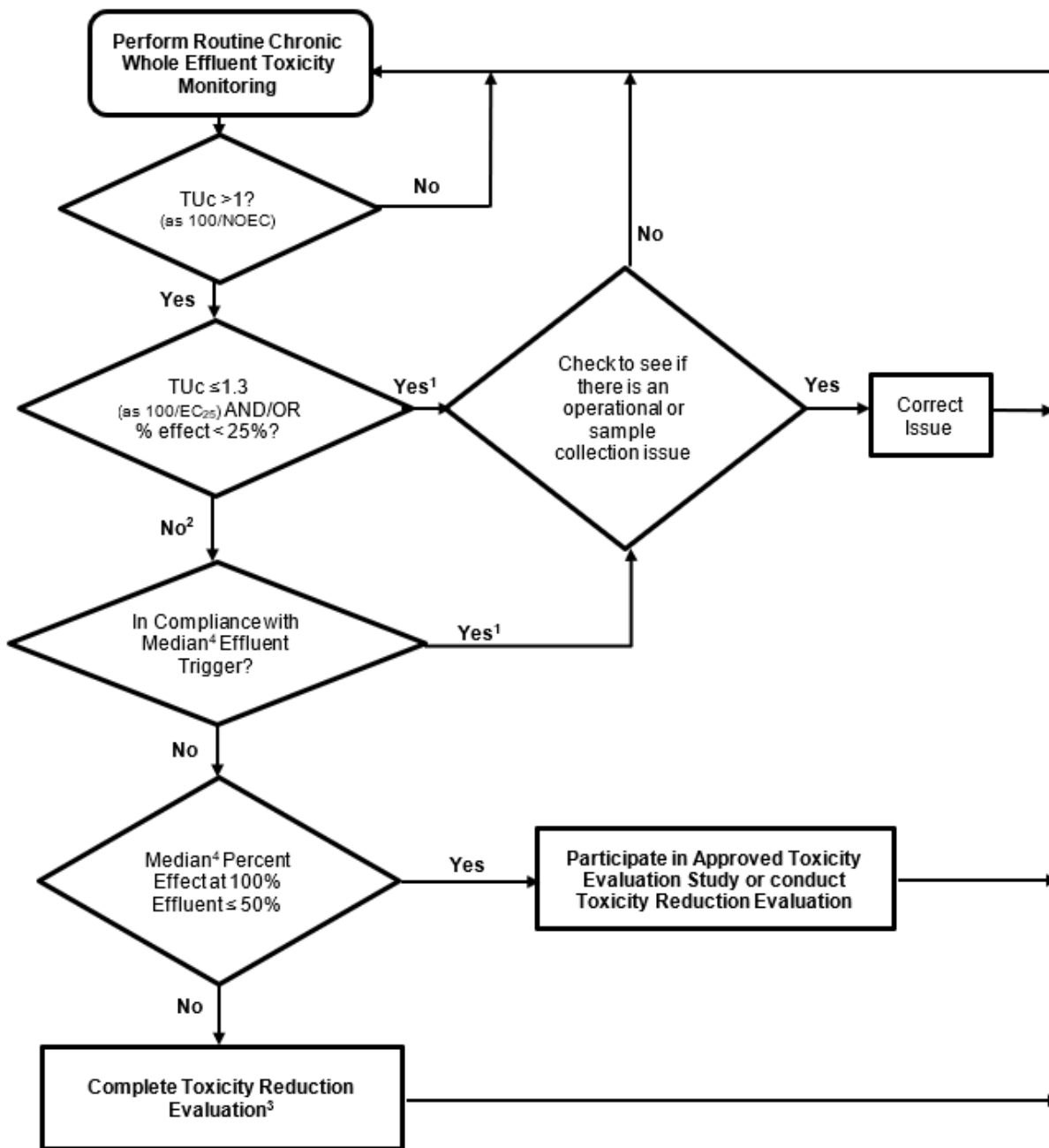


Figure F-3 Notes:

1. The Discharger may participate in an approved TES if the discharge has exceeded the chronic toxicity monitoring trigger twice or more in the past 12-month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart, and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.

3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
4. See Compliance Determination section VII.G for procedures for calculating 6-week median.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** An evaluation and minimization plan for salinity is required to be maintained in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Fourteen Mile Slough.

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

5. Special Provisions for Publicly-Owned Treatment Works (POTW's) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The Compliance Schedule Policy allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible and may not exceed 10 years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

In accordance with the Compliance Schedule Policy and 40 C.F.R. section 122.47, a discharger who seeks a compliance schedule must demonstrate additional time is necessary to implement actions to comply with a more stringent permit limitation. The Discharger must provide the following documentation as part of the application requirements:

- a. Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;

- b. Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established;
- c. A proposed schedule for additional source control measures or waste treatment;
- d. Data demonstrating current Facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;
- e. The highest discharge quality that can reasonably be achieved until final compliance is attained;
- f. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and
- g. Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the ROWD, SMR's, and other miscellaneous submittals, it has been demonstrated to the satisfaction of the Central Valley Water Board that the Discharger needs time to implement actions to comply with the final effluent limitations for methylmercury.

The Delta Mercury Control Program is composed of two phases. Phase 1 is currently underway and continues through the Phase 1 Delta Mercury Control Program Review. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetlands, and open-water habitats; and reducing total mercury loading to the San Francisco Bay, as required by the Water Quality Control Plan for the San Francisco Bay. As part of Phase 1, the CVCWA Coordinated Methylmercury Control Study Work Plan was approved by the Executive Officer on 7 November 2013. The final CVCWA Methylmercury Control Study was submitted to the Central Valley Water Board on 19 October 2018 and revised on 26 October 2018.

As part of Phase 1, the Delta Mercury Control Program also required dischargers to participate in a Mercury Exposure Reduction Program (MERP). The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The Discharger elected to provide financial support in a collective MERP with other Delta dischargers, rather than

be individually responsible for any MERP activities. An exposure reduction work plan for Executive Officer approval was submitted on 20 October 2013, which addressed the MERP objective, elements, and the Discharger's coordination with other stakeholders.

At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and WLA's after implementing all reasonable load reduction strategies. The review will also consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, and fish consumption) of attaining the allocations. The fish tissue objectives, linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules shall be adjusted at the end of Phase 1, or subsequent program reviews, if appropriate.

Phase 2 begins after the Phase 1 Delta Mercury Control Program Review. During Phase 2, dischargers shall implement methylmercury control programs and continue inorganic (total) mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2. Any compliance schedule contained in an NPDES permit must be "...an enforceable sequence of actions or operations leading to compliance with an effluent limitation..." per the definition of a compliance schedule in CWA section 502(17). See also 40 C.F.R. section 122.2 (definition of schedule of compliance). The compliance schedule for methylmercury meets these requirements.

Federal regulations at 40 C.F.R. section 122.47(a)(1) require that, "Any schedules of compliance under this section shall require compliance as soon as possible..." The Compliance Schedule Policy also requires that compliance schedules are as short as possible and may not exceed 10 years, except when "...a permit limitation that implements or is consistent with the waste load allocations specified in a TMDL that is established through a Basin Plan amendment, provided that the TMDL implementation plan contains a compliance schedule or implementation schedule." As discussed above, the Basin Plan's Delta Mercury Control Program includes compliance schedule provisions and allows compliance with the WLA's for methylmercury by 2030. Until the Phase 1 Control Studies are complete and the Central Valley Water Board conducts the Phase 1 Delta Mercury Control Program Review, it is not possible to determine the appropriate compliance date for the Discharger that is as soon as possible. Therefore, this Order establishes a compliance schedule for the final WQBEL's for methylmercury with full compliance required by 31 December 2030, which is consistent with the Final Compliance Date of

the TMDL. At completion of the Phase 1 Delta Mercury Control Program Review, the final compliance date for this compliance schedule will be re-evaluated to ensure compliance is required as soon as possible. Considering the available information, the compliance schedule is as short as possible in accordance with federal regulations and the Compliance Schedule Policy.

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.

Water Code section 13176, subdivision (a)(1) requires that laboratory analyses shall be performed by laboratories accredited by DDW, which accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP). Data generated using field tests are exempt from this requirement pursuant to Water Code section 13176, subdivision (a)(2).

The 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 the Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess performance of the groundwater treatment system. The monitoring frequencies for flow (continuous), electrical conductivity, (quarterly), total petroleum hydrocarbons (gasoline range) (quarterly), and VOC's (quarterly) have been retained from Order R5-2016-0002.

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 flow (continuous), pH (monthly), arsenic (monthly), chromium VI (quarterly), mercury (quarterly), barium (monthly), dissolved oxygen (monthly), electrical conductivity (monthly), hardness (quarterly), methylmercury (quarterly), temperature (monthly), total dissolved solids (quarterly), total petroleum hydrocarbons (gasoline range) (monthly), and VOC's (monthly) have been retained from Order R5-2016-0002 to determine compliance with effluent limitations and discharge prohibitions, where applicable, for these parameters.

3. This Order establishes annual effluent monitoring requirements for chlorpyrifos and diazinon in order to determine compliance with the WQBEL's for these parameters based on the TMDL for chlorpyrifos and diazinon for Sacramento-San Joaquin Delta waterways.
4. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern once during 2022. This monitoring frequency has been retained from Order R5-2016-0002. See section IX.A of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.
5. 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." DDW accredits laboratories through ELAP.

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 §§ 13370, subd. (c), 13372, 13377). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements (Wat. Code § 13372, subd. (a)). The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. § 136.3(e), Table II). Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order R5-2016-0002, annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Consistent with R5-2016-0002, semi-annual chronic WET testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

- a. **Delta Regional Monitoring Program.** The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on

Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than continue to be used in individual, uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program will provide data to better inform management and policy decisions regarding the Delta.

This Order allows the Discharger to elect to participate in the Delta Regional Monitoring Program in lieu of conducting all or part of the individual receiving water monitoring required in the Monitoring and Reporting Program. If the Discharger elects to cease individual receiving water monitoring and participate in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative to the Executive Officer informing the Central Valley Water Board that the Discharger will participate in the Delta Regional Monitoring Program and the date on which individual receiving water monitoring under Attachment E, Sections VIII.A and VIII.B, will cease or be modified. Approval by the Executive Officer is required, and contingent on Delta Regional Monitoring Program Steering Committee action on the forthcoming Regional Monitoring Program monitoring plan.

Participation in the Delta Regional Monitoring Program by a discharger shall consist of providing funds and/or in-kind services to the Delta Regional Monitoring Program.

- b. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- c. Receiving water monitoring frequencies and sample types for tide stage (quarterly), pH (monthly), dissolved oxygen (monthly), electrical conductivity (monthly), hardness (quarterly), temperature (monthly), and turbidity (monthly) at Monitoring Location RSW-002 have been retained from Order R5-2016-0002 to determine compliance with the applicable receiving water limitations and characterize the receiving water for these parameters.
- d. Receiving water monitoring frequencies and sample types for flow conditions (quarterly), tide stage (quarterly), pH (quarterly), dissolved arsenic (quarterly), dissolved barium (quarterly), dissolved oxygen (quarterly), electrical conductivity (quarterly), temperature (quarterly), and turbidity (quarterly) at Monitoring Location RSW-003 between 1 April 2022

and 31 March 2023 have been retained from Order R5-2016-0002. The Central Valley Water Board finds that this frequency is sufficient to characterize the receiving water at the edge of the approved mixing zone.

- e. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires receiving water monitoring for priority pollutants and other constituents of concern once during 2022, concurrent with effluent monitoring, at Monitoring Location RSW-004, in order to collect data to conduct an RPA for the next permit renewal.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

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

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

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Lincoln Center Environmental Remediation Trust, Groundwater Treatment System. As a step in the WDR adoption process, 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 of the Notice of Public Hearing concerning the WDRs at the Superior Court of California and the Facility on 28 December 2020. The Notice of Public Hearing was also posted on the Central Valley Water Board's website. 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 **11 January 2021**.

C. Public Hearing

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

Date: **18 February 2021**
Time: **8:30 a.m.**
Location: **Online**

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

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and CCR, 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 ROWD, 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 Saranya Elankovan at (916) 464-4742.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Abbreviations used in this table:

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

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

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Arsenic, Total Recoverable	µg/L	12	2.0	10	340	150	--	--	10	10	Yes
Barium, Total Recoverable	µg/L	360	46	100	--	--	--	--	100	1,000	Yes
Chloride	mg/L	46	140	230	860 (see table note 1. below)	230 (see table note 2. below)	--	--	--	250	No
Electrical Conductivity @ 25°C	umhos /cm	806 (see table note 3. below)	468 (see table note 3. below)	1600	--	--	--	--	--	1600	No (see table note 4. below)
Mercury, Total Recoverable	µg/L	0.01 (see table note 3. below)	ND	0.012	--	--	--	--	--	0.012 (see table note 5. below)	No (see table note 6. below)
Methylmercury	µg/L	0.000034	0.000095	--	--	--	--	--	--	--	No (see table note 6. below)
Sulfate	mg/L	48 (see table note 3. below)	31 (see table note 3. below)	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	533 (see table note 3. below)	218 (see table note 3. below)	1000	--	--	--	--	--	1000	No

Table Notes:

- (1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
- (2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
- (3) Represents the maximum observed annual average concentration for comparison with the Secondary MCL or Sport Fish Water Quality Objective for mercury, where applicable.

- (4) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.
- (5) State Water Board Sport Fish Water Quality Objective for mercury.
- (6) Constituents with a Total Maximum Daily Load (TMDL).

ATTACHMENT H – CALCULATION OF WQBEL’S

Abbreviations used in this table:

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

HUMAN HEALTH WQBEL CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV (see table note 1)	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL
Arsenic, Total Recoverable	µg/L	10	1.6	0.11	3.0	1.17	1.09	23 (see table note 2 below)	26 (see table note 2 below)
Barium, Total Recoverable	µg/L	100	32	0.070	8.3	1.11	1.06	415 (see table note 2 below)	460 (see table note 3 below)

Table Notes:

- (1) Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.
- (2) Final AMEL’s in the Order have been retained from Order R5-2016-0002 based on Facility performance.
- (3) Final MDEL’s in the Order have been calculated based on an updated CV and updated assimilative capacity.