CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0077682
ORDER R5-2026-XXXX
TENTATIVE WASTE DISCHARGE REQUIREMENTS
FOR THE SACRAMENTO AREA SEWER DISTRICT,
ECHOWATER RESOURCE RECOVERY FACILITY, SACRAMENTO COUNTY

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

Table 1. Discharger Information

Discharger:	Sacramento Area Sewer District
Name of Facility:	EchoWater Resource Recovery Facility
Facility Street Address:	8521 Laguna Station Road
Facility City, State, Zip:	Elk Grove, CA 95758
Facility County:	Sacramento County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	38° 27’ 15”	121° 30’ 00”	Sacramento River

Table 3. Administrative Information

This Order was Adopted on:	**XX June 2026**
This Order shall become effective on:	**1 August 2026**
This Order shall expire on:	**31 July 2031**
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 (CCR), and an application for reissuance of a NPDES permit no later than:	**31 July 2030**
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:	**Major Discharge**

I, Patrick Pulupa, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **XX June 2026**.

_____
PATRICK PULUPA, Executive Officer

WASTE DISCHARGE REQUIREMENTS
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TABLES

ATTACHMENTS

I. FACILITY INFORMATION

Information describing the EchoWater Resource Recovery Facility (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

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

A. Legal Authorities. This Order serves as waste discharge requirements (WDRs) 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 WDRs 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 I are also incorporated into this Order.

D. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C.6 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 establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This Order and the Monitoring and Reporting Program, provided in Attachment E, establish monitoring and reporting requirements to implement federal and State requirements. The burden, including costs, of these monitoring and reporting requirements bears a reasonable relationship to the need for these reports and the benefits to be obtained therefrom. The Discharger, as owner and operator of the Facility, is responsible for these requirements, which are necessary to determine

compliance with this Order. The need for these requirements is further discussed in the Fact Sheet, Attachment F.

F. Notification of Interested Persons. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs 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 R5-2021-0019-02 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, with the exception of the disinfected secondary effluent and tertiary effluent that may be reclaimed for dust control and compaction on construction projects, landscape irrigation, wash down water, vehicle washing and grounds maintenance within the Facility boundaries, and for flushing of pipelines within the sewer collection system. It may also be used for the in-plant process water and fire protection.

B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

D. Discharge of waste classified as ‘hazardous’, as defined in the CCR, Title 22, section 66261.1 et seq., is prohibited.

E. Discharge to the Sacramento River is prohibited when the Sacramento River instantaneous flow is less than 1,300 cubic feet per second (cfs) at Monitoring Location RSWU-001.

F. Discharge to the Sacramento River is prohibited when there is less than a 14 to 1 (river to effluent) flow ratio over a rolling 1-hour period available in the Sacramento River at RSWU-001.

G. **Average Dry Weather Flow.** Discharges exceeding an average dry weather flow of 181 million gallons per day (MGD) are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand 5-day @ 20°Celsius (BOD_5)	milligrams per liter (mg/L)	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	--
Chlorodibromomethane	µg/L	34	--	64
Cyanide, Total (as CN)	µg/L	11	--	22
Dichlorobromomethane	µg/L	47	--	77
Ammonia Nitrogen, Total (as N) (1 April through 31 October)	mg/L	2.1	2.6	--
Ammonia Nitrogen, Total (as N) (1 November through 31 March	mg/L	2.4	3.2	--
Nitrate Plus Nitrite, Total (as N)	mg/L	16.1	22	--

b. **pH:**

i. 6.0 Standard Units (SU) as an instantaneous minimum.

ii. 8.0 SU as an instantaneous maximum.

c. **Percent Removal.** The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent.

d. **Chronic Whole Effluent Toxicity (WET).**

i. **Chronic WET Maximum Daily Effluent Limitation (MDEL).** No Ceriodaphnia dubia, chronic aquatic toxicity test shall result in a “Fail” at the Instream Waste Concentration (IWC) for the sub-lethal endpoint measured in the test AND a percent effect for the survival endpoint greater than or equal to 50 percent.

ii. **Chronic WET Monthly Median Effluent Limitation (MMEL).** For Ceriodaphnia dubia, no more than one chronic aquatic toxicity test initiated in a calendar month shall result in a "Fail" at the IWC for any endpoint.

e. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSWU-001 by more than 20°F from 1 May through 30 September and more than 25°F from 1 October through 30 April.

f. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:

i. 0.011 mg/L, as a 4-day average; and

ii. 0.019 mg/L, as a 1-hour average.

g. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured after chlorination and prior to dechlorination:

i. **1 May through 31 October:**

(a) 2.2 most probable number per 100 milliliters (MPN/100 mL), as a 7-day median;

(b) 23 MPN/100 mL, more than once in any 30-day period;

(c) 240 MPN/100 mL, at any time.

ii. **1 November through 30 April:**

(a) 2.2 MPN/100 mL, as a monthly median;

(b) 23 MPN/100 mL, as a weekly median;

(c) 240 MPN/100 mL, at any time.

h. **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)

SAMEL = CD M-avg/0.079 + CC M-avg/0.012 ≤ 1.0

CD M-AVG = average monthly diazinon effluent concentration in µg/L.

CC M-AVG = average monthly chlorpyrifos effluent concentration in µg/L

ii. Average Weekly Effluent Limitation (AWEL)

SAWEL = CD W-avg/0.14 + CC W-avg/0.021 ≤ 1.0

CD W-AVG = average weekly diazinon effluent concentration in µg/L.

CC W-AVG = average weekly chlorpyrifos effluent concentration in µg/L.

i. **Methylmercury. Effective 31 December 2030,** the effluent calendar year annual methylmercury load shall not exceed 89 grams.

2. Interim Effluent Limitations

The Discharger shall maintain compliance with the following interim effluent limitation 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 1,043 grams. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (section IV.A.1.k).

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications

1. **Production of Disinfected Tertiary Recycled Water for Distribution.** The Discharger is enrolled under the State Water Board Water Quality Order WQ 2016-0068-DDW, *Water Reclamation Requirements for Recycled Water Use*, which provides coverage for the distribution and use of Title 22 disinfected tertiary recycled water. The Discharger submitted a Revised Engineering Report dated July 2018 (Treatment of Recycled Water and Urban Recycled Water Distribution) prepared pursuant to Title 22, section 60323, which was conditionally accepted by the State Water Board Division of Drinking Water (DDW) per the conditional acceptance letter dated 5 October 2018 Hereinafter the term “conditionally accepted Title 22 Engineering Report" refers to the 2018 conditionally accepted Title 22 Engineering Report or any subsequently revised Title 22 Engineering Report that has been conditionally accepted by DDW.

   The recycled water treated under this NPDES permit will also be utilized for the future distribution of recycled water for the SacSewer Harvest Water Program. The Harvest Water program will distribute recycled water for agricultural irrigation and ecological benefits. SacSewer submitted a separate Title 22 Engineering Report for the distribution of recycled for the Harvest Water Program and received conditional acceptance from the DDW on August 21, 2025. The Harvest Water Program will be incorporated into Order WQ 2016-0068-DDW in the future, with expected delivery of recycled water beginning in 2027.

   When producing Title 22 disinfected tertiary recycled water for use under Order WQ 2016-0068-DDW, the Discharger shall meet the recycling specifications below:

a. The Discharger shall operate the Facility consistent with a conditionally accepted Title 22 Engineering Report.

b. Prior to implementing any changes in operations, for the production of recycled water, the Discharger shall revise the Title 22 Engineering Report and receive DDW conditional acceptance.

c. The Discharger shall operate the Facility in accordance with DDW approved Standard Operating Procedures (SOP) that specify the operational limits, critical alarms, and responses to alarms for the high loading rate filtration and free chlorine treatment processes consistent with the conditionally accepted Title 22 Engineering Report.

d. Wastewater shall be oxidized, filtered, and adequately disinfected pursuant to the State Water Board, DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, including any alternative treatment technology per the conditionally accepted Title 22 Engineering Report.

e. For discharges of recycled water, the Discharger shall comply with the operating specifications per the conditionally accepted Title 22 Engineering Report as follows:

i. **Filtration System Operating Specifications**. The combined filter effluent turbidity measured at FIL-001, as described in the Monitoring and Reporting Program (MRP), Attachment E, shall not exceed any of the following:

(a) 1.5 nephelometric turbidity units (NTU) as 24-hour average;

(b) 2.5 NTU more than 5 percent of the time within a 24-hour period; and

(c) 5 NTU at any time.

ii. **Total Coliform Organisms**. Effluent total coliform organisms shall not exceed the following, with compliance measured at Monitoring Location REC-001 as described in the MRP, Attachment E:

(a) 2.2 most probable number per 100 milliliters (MPN/100 mL), as a 7-day median;

(b) 23 MPN/100 mL, more than once in any 30-day period; and

(c) 240 MPN/100 mL, at any time.

iii. The Discharger shall demonstrate compliance with all remaining operating specifications per the conditionally accepted Title 22 Engineering Report within the monthly Self-Monitoring Reports as required in the Monitoring and Reporting Program (Attachment E, Section X.D.6)

V. RECEIVING WATER LIMITATIONS

A. Surface Water 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:

      (a) 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.

      (b) 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.

      (c) Change in sludge use or disposal practice. Under 40 CFR section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is

cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

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

   i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

   ii. Controls any pollutant limited in the Order.

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

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger 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.

i. Safeguard to electric power failure:

i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

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.

k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

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. This Order may be reopened to transfer ownership of control of this Order. The succeeding owner or operator must apply in writing 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.

p. If the Discharger submits a timely and complete ROWD for permit reissuance, this permit shall continue in force and effect until the permit is reissued or the Regional Water Board rescinds the permit.

q. 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.

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

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including, but not limited to:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments

thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened, and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. **Pollution Prevention.** The Discharger previously prepared pollution prevention plans pursuant to Water Code section 13263.3(d)(3). Based on a review of the pollution prevention plans and any updates, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

e. **Whole Effluent Toxicity.**

i. This Order may be reopened for modification to revise the aquatic toxicity provisions if the Supreme Court determines that the test of significant toxicity cannot be used in NPDES permits and the State Water Board suspends or revises the aquatic toxicity water quality standards.

ii. If after review of new data and information, it is determined that the discharge has reasonable potential to cause or contribute to an instream exceedance of the Statewide Toxicity Provisions' numeric chronic aquatic toxicity objective and Basin Plan's narrative toxicity objective this Order may be reopened and effluent limitations added for acute and/or chronic toxicity.

f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal

translators have been used to convert water quality objectives from dissolved to total when developing effluent limitations for applicable constituents. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

g. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) web page: (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction**

b. **Evaluation (TRE) Requirements**. The Discharger shall initiate a TRE, as detailed in the Monitoring and Reporting Program (Attachment E, Section V.G), when any combination of two or more trigger exceedances occur within a single toxicity calendar month or within two successive toxicity calendar months. In addition, if other information indicates toxicity (e.g., results of additional monitoring, fish kills, intermittent recurring toxicity) or if there is no effluent available to complete a routine monitoring test or compliance test, the Executive Officer may require a TRE.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan (SEMP)**.The Discharger shall continue to implement a SEMP to identify and address sources of salinity discharged from the Facility. The Discharger submitted a Notice of Intent to comply with the Salt Control Program and selected the Alternative Permitting Approach. Accordingly, the Discharger shall participate in the CV-SALTS Prioritization and Optimization (P&O) Study. Furthermore, an evaluation of the effectiveness of the SEMP shall be submitted with the ROWD. The evaluation shall include, at minimum, the calendar annual average specific conductance during the term of the Order. If the average specific conductance for any calendar year exceeds a **performance-based trigger of 1,300 µmhos/cm** at Monitoring Location EFF-001, the

Discharger shall evaluate possible sources of salinity contributing to the exceedance of the trigger and update the SEMP to include a plan of action to control salinity.

4. Construction, Operation and Maintenance Specifications

a. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, per the conditionally accepted Title 22 Engineering Report the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed the following:

i. 1.5 NTU as a 24-hour average;

ii. 2.5 NTU more than 5 percent of the time within a 24-hour period; and

iii. 5 NTU, at any time.

b. **Emergency Storage Basin (ESB) Operating Requirements**

i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

iii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

(a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

(b) Weeds shall be minimized.

(c) Dead algae, vegetation, and debris shall not accumulate on the water surface.

iv. Freeboard for the total emergency storage basin system shall never be less than 2 feet (measured vertically to the lowest point of overflow).

v. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23 of the CCR, or “designated”, as defined in Water Code section 13173, to the treatment ponds is prohibited.

vi. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas (or property owned by the Discharger).

vii. The ESBs shall be operated and maintained in accordance with the Standard Operating Procedures as approved by the Executive Officer. Modifications to the ESBs or significant changes to the Standard Operating Procedures, may be approved by the Executive Officer as individual amendments or revised Standard Operating Procedures.

5. Special Provisions for Publicly Owned Treatment Works (POTWs)

a. **Pretreatment Requirements**

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. Part 403, including any subsequent regulatory revisions to 40 C.F.R. Part 403. Where 40 C.F.R. Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.

ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

iii. The Discharger shall perform the pretreatment functions as required in 40 C.F.R. Part 403 including, but not limited to:

(a) Implement the necessary legal authorities as provided in 40 CFR Part 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 C.F.R. sections 403.5 and 403.6;

(c) Implement the programmatic functions as provided in 40 C.F.R. section 403.8(f)(2); and

(d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. section 403.8(f)(3).

iv. **Pretreatment Reporting Requirements.** Pretreatment reporting requirements are included in the Monitoring and Reporting Program, section X.D.5 of Attachment E.

v. **Local Limits Evaluation.** In accordance with 40 C.F.R. section 122.44(j)(2)(ii) the Discharger shall provide a written technical evaluation of the need to revise the local limits under 40 C.F.R. section 403.5(c)(1), with the ROWD by the due date in the Technical Reports Table E-10 of this Order.

c. **Resource Recovery from Anaerobically Digestible Material (ADM).** The Discharger receives hauled-in anaerobically digestible material for injection into an anaerobic digester. The Discharger shall continue to implement Standard Operating Procedures for this activity. The Standard Operating Procedures shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the Standard Operating Procedures shall address avoidance of the introduction of materials that could cause interference, pass-through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall train its staff on the Standard Operating Procedures and shall maintain records for a minimum of five years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of five years for the disposition, location, and quantity of cumulative pre-digestion-segregated solid waste hauled off-site.

6. Other Special Provisions

a. **Seasonal Title 22, or Equivalent, Disinfection Requirements.** From 1 May to 31 October, when discharging to surface water, wastewater shall be oxidized, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent, consistent with the conditionally accepted Title 22 Engineering Report, in accordance with the compliance schedule in section VI.C.7.a.

7. Compliance Schedules

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

VII. COMPLIANCE DETERMINATION

A. Ammonia, BOD_5 and TSS Effluent Limitations (sections IV.A.1.a and IV.A.1.c). Compliance with the final effluent limitations for ammonia, BOD_5 and TSS required in Waste Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Waste Discharge Requirements section IV.A.1.c for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Total Mercury Mass Loading Effluent Limitations (section 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 monitoring and reporting program, pretreatment program, 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 and detected but not quantified (DNQ) measures at the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and/or further statistical analysis and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

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

D. Total Coliform Organisms Effluent Limitations (section IV.A.1.g).

1. **7-Day Median.** For each day that an effluent sample is collected and analyzed for total coliform organisms, compliance with the 7-day median final effluent limitation (section IV.A.1.h.i.(a)) shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. The first compliance determination is made on 7 May of a year and the last compliance determination is made on 31 October of a year.

2. **Monthly Median.** Compliance with the total coliform monthly median final effluent limitation (section IV.A.1.h.ii.(a)) shall be determined by calculating the

median value of total coliform bacteria in the effluent utilizing all total coliform results during each calendar month in which the monthly median limitation applies (i.e., November – April).

3. **Weekly Median.** Compliance with the weekly median effluent limitation (section IV.A.1.g.ii.(b)) shall be determined by calculating the median value of total coliform bacteria in the effluent utilizing all total coliform results from Sunday through Saturday of each calendar week.

E. Total Residual Chlorine Effluent Limitations (section IV.A.1.f). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. If a false positive is confirmed, the Discharger may report the chlorine residual as 0 mg/l for those instances if supporting documentation is provided (demonstration that the value was a false positive).This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, or thorough positive dechlorination residual that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance . False positives shall be noted as such in the monitoring report. Records supporting validation of false positives, including documentation of the chlorine spike and the information that the Discharger relied on to demonstrate that no violation occurred, shall be maintained in accordance with Section IV Standard Provisions (Attachment D).

F. Priority Pollutant Effluent Limitations. Compliance with effluent limitations for priority pollutants shall be determined in accordance with section 2.4.5 of the SIP, as follows:

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

a. Sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or

b. Sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).

3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall **not** be deemed out of compliance.

G. Temperature Effluent Limitation (Section IV.A.1.e) Compliance with the effluent limitation for temperature, for every day receiving water temperature samples are collected at Monitoring Location RSWU-001, shall be determined by calculating the difference between the effluent temperature and upstream receiving water temperature based on the difference in the effluent temperature at Monitoring Location EFF-001 and receiving water temperature of grab samples collected at Monitoring Location RSWU-001. The effluent temperature shall be taken from the continuous effluent data for the same time that the river grab sample was collected.

H. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.h) 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.

I. Whole Effluent Toxicity Effluent Limitations (Section IV.A.1.d). The discharge is subject to determination of “Pass” or “Fail” from chronic whole effluent toxicity tests using the Test of Significant Toxicity (TST) statistical t-test approach described in

National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 (Chronic Freshwater and East Coast Methods) and Appendix B, Table B-1.

The null hypothesis (Ho) for the TST statistical approach is:

Mean discharge Instream Waste Concentration (IWC) response ≤ Regulatory Management Decision (RMD) x Mean control response, where the chronic RMD = 0.75.

A test result that rejects this null hypothesis is reported as "Pass." A test result that does not reject this null hypothesis is reported as "Fail."

The relative "Percent Effect" at the discharge IWC is defined and reported as:

Percent Effect = ((Mean control response – Mean discharge IWC response) / Mean control response) x 100.

This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations, i.e., a control and IWC. The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC differs from the control, the test result is "Fail"). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

1. **Chronic Whole Effluent Toxicity MDEL.** If the result of a routine Ceriodaphnia dubia chronic whole effluent toxicity test, using the TST statistical approach, is a "Fail" at the IWC for the sublethal endpoint measured in the test and a percent effect for the survival endpoint greater than or equal to 50 percent, the Discharger will be deemed out of compliance with the MDEL.

2. **Chronic Whole Effluent Toxicity MMEL.** If a routine Ceriodaphnia dubia chronic whole effluent toxicity test and at least one Ceriodaphnia dubia chronic toxicity MMEL compliance test conducted within the same toxicity calendar month result in a "Fail" at the IWC, using the TST statistical approach, the Discharger will be deemed out of compliance with the MMEL.

ATTACHMENT A – DEFINITIONS

1Q10
The lowest one-day flow with an average reoccurrence frequency of once in ten years.

7Q10
The lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years.

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

Alternative Hypothesis
A statement used to propose a statistically significant relationship in a set of given observations. Under the TST approach, when the Null Hypothesis is rejected, the Alternative Hypothesis is accepted in its place, indicating a relationship between variables and an acceptable level of toxicity.

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:

Arithmetic mean = $\mu = \Sigma x / n$

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

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

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

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

Calendar Month

A period of time from the first of a month to the last day of the month (e.g., from January 1 to January 31, from April 1 to April 30, or from December 1 to December 31).

Calendar Quarter
A period of time defined as three consecutive calendar months (e.g., from January 1 to March 31, from April 1 to June 30, or from October 1 to December 31).

Calendar Year
A period of time defined as twelve consecutive calendar months (i.e., January 1 to December 31).

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

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

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

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

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

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

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is

calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

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

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

Endpoint
An effect that is measured in a toxicity study. Endpoints in toxicity tests may include, but are not limited to survival, reproduction, and growth. A measured response of a receptor to a stressor. An endpoint can be measured in a toxicity test or field survey.

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

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

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).

Instream Waste Concentration (IWC)
The concentration of effluent in the receiving water after mixing.

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.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Null Hypothesis
A statement used in statistical testing that has been put forward either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved.

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.

Regulatory Management Decision (RMD)
The decision that represents the maximum allowable error rates and thresholds for toxicity and non-toxicity that would result in an acceptable risk to aquatic life.

Response
A measured biological effect (e.g., survival, reproduction, growth) as a result of exposure to a stimulus.

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.

Species Sensitivity Screening
An analysis to determine the single most sensitive species from an array of test species to be used in a single species laboratory test series.

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.

Statewide Toxicity Provisions

The Statewide Toxicity Provisions became effective on 25 April 2022 and include statewide numeric water quality objectives for both acute and chronic toxicity and a program of implementation to control toxicity. Statistical Threshold Value (STV)
The STV for the bacteria receiving water limitation is a set value that approximates the 90th percentile of the water quality distribution of a bacterial population.

Test of Significant Toxicity (TST)
A statistical approach used to analyze aquatic toxicity test data, as described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 (Chronic Freshwater and East Coast Methods) and Appendix B, Table B-1.

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) may7 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.).

WET Maximum Daily Effluent Limitation (MDEL)
For the purposes of chronic and acute aquatic toxicity, an MDEL is an effluent limitation based on the outcome of the TST approach and the resulting percent effect at the IWC.

WET Median Monthly Effluent Limit (MMEL)
For the purposes of chronic and acute aquatic toxicity, an MMEL is an effluent limitation based on a maximum of three independent toxicity tests analyzed using the TST approach during a toxicity calendar month.

WET Maximum Daily Effluent Target (MDET)
For the purposes of chronic aquatic toxicity, an MDET is a target used to determine whether a Toxicity Reduction Evaluation (TRE) should be conducted. Not meeting the MDET is not a violation of an effluent limitation.

WET Median Monthly Effluent Target (MMET)
For the purposes of chronic aquatic toxicity, an MMET is a target based on a maximum of three independent toxicity tests used to determine whether a TRE should be conducted. Not meeting the MMET is not a violation of an effluent limitation.

WET MMEL Compliance Tests
For the purposes of chronic and acute aquatic toxicity, a maximum of two tests that are used in addition to the routine monitoring test to determine compliance with the chronic and acute aquatic toxicity MMEL.

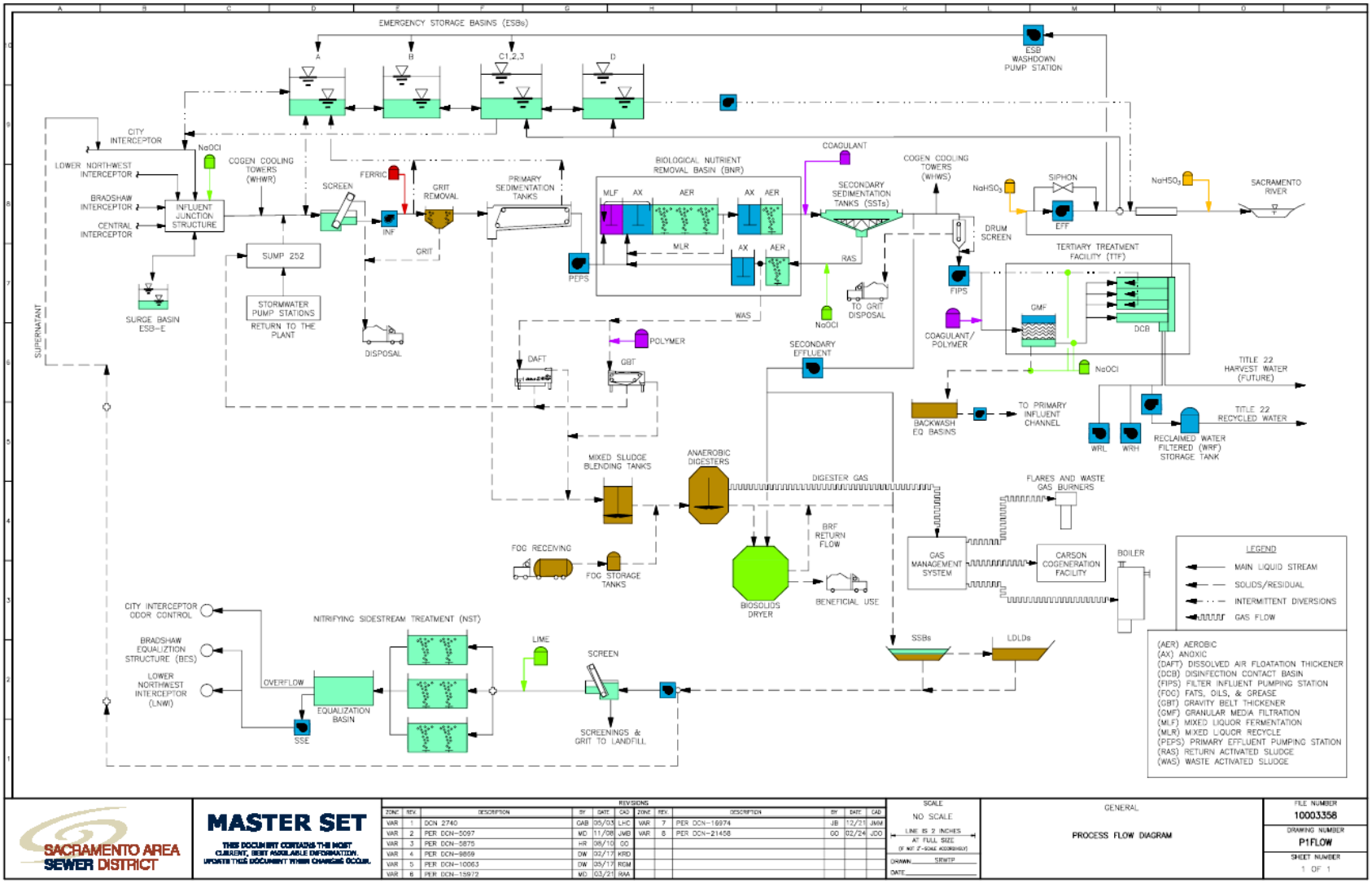
WET MMET Tests
For the purposes of chronic aquatic toxicity, for dischargers not required to comply with numeric chronic toxicity effluent limitations, MMET Tests are a maximum of two tests that are used in addition to the routine monitoring test to determine whether a TRE should be conducted.

ATTACHMENT B – MAP

Figure B-1. Sacramento Area Sewer District, EchoWater Resource Recovery Facility Site Map

Figure B-2. EchoWater Resource Recovery Facility Site Map Process Area Map

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply:

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. section 122.41(a); Wat. Code, sections 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. section 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(1); Wat. Code, sections 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(2); Wat. Code, sections 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(3); Wat. Code, section 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C section 1318(a)(4)(B); 40 C.F.R. section 122.41(i)(4); Wat. Code, sections 13267, 13383.)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. section 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. section 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not

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

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. section 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. section 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. section 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. section 122.41(m)(4)(i)(C).)

4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. section 122.41(m)(4)(ii).)

5. **Notice**

   a. **Anticipated bypass.** If the Discharger knows in advance of the need for a bypass, it shall submit prior notice if possible, at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), 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/), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40

C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(ii).)

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. section 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. section 122.41(n)(3)):

    a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. section 122.41(n)(3)(i));

    b. The permitted facility was, at the time, being properly operated (40 C.F.R. section 122.41(n)(3)(ii));

    c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. section 122.41(n)(3)(iii)); and

    d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. section 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. section 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and;

    a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;

    b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge.

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

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. section 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. section 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. section 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. section 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. section 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. section 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. section 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. section 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. section 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. section 122.41(k).)

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

3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. section 122.22(b)(1));

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. section 122.22(b)(2)); and

    c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. section 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted

to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. section 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

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

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. section 122.41(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of 21 December 2016, all reports and forms must be submitted electronically to the initial recipient, defined in Standard Provisions – Reporting V.J, and comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. section 122.41(l)(4)(i).)

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

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. section 122.41(l)(4)(iii).)

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

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

   As of 21 December 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. They may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. section 122.41(l)(6)(i).)

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. section 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. section 122.41(l)(1)(ii).)

   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. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Central Valley Water Board of the following (40 C.F.R. section 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. section 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. section 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. section 122.42(b)(3).

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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Tables

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 authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring and reporting requirements that implement federal and California requirements.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.

B. Final effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory accredited for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health), in accordance with the provision of Water Code section 13176. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. Field tests performed by a non-accredited laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

F. Laboratory analytical methods shall be sufficiently sensitive in accordance with the Sufficiently Sensitive Methods Rule (SSM Rule) specified under 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). A U.S. EPA-approved analytical method is sufficiently sensitive for a pollutant/parameter where:

1. The method minimum level (ML) is at or below the applicable water quality objective for the receiving water, or;

2. The method ML is above the applicable water quality objective for the receiving water but the amount of the pollutant/parameter in the discharge is high enough that the method detects and quantifies the level of the pollutant/parameter, or;

3. the method ML is above the applicable water quality objective for the receiving water, but the ML is the lowest of the 40 C.F.R. 136 U.S. EPA-approved analytical methods for the pollutant/parameter.

G. The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Resources Control Board at the following address or electronically via email to the DMR-QA Coordinator:

State Water Resources Control Board
Quality Assurance Program Officer
Office of Information Management and Analysis
1001 I Street, Sacramento, CA 95814

H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

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 influent into the Facility can be collected prior to entering the treatment process.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected. Latitude: 38° 27’ 15” N Longitude: 121° 30’ 00” W

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	TER-001	A location where a representative sample of tertiary treated wastewater can be obtained downstream of the filtration and disinfection systems and prior to discharge to the emergency storage basins (ESB's) or the Sacramento River.
--	ESB-A through ESB-E	ESB's A through E
--	RSWU-001	In the Sacramento River, upstream from Discharge Point 001, at Freeport Bridge.
--	RSWD-003	In the Sacramento River, 4,200 feet downstream of Discharge Point 001, at Cliff's Marina.
--	FIL-001	A location where a representative sample of the Facility's filtration system effluent can be obtained without influence from downstream unit processes or flows.
--	REC-001	A location where a representative sample of recycled water can be obtained. This location is for purposes of determining compliance with Recycling Specifications, Section IV.C of the WDRs.

Table E-1 Note:

1. 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 Facility's influent at Monitoring Location INF-001 in accordance with 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
pH	standard units	Meter	Continuous
Biochemical Oxygen Demand, 5-day @ 20°Celcius (BOD_5)	mg/L	24-hour Composite	1/Day
Total Suspended Solids (TSS)	mg/L	24-hour Composite	1/Day

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 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

b. **24-Hour Composite Samples.** All composite samples shall be collected from a 24-hour flow proportional composite. In the event of composite malfunction, a grab sample may be substituted.

c. **pH.** Grab samples to be collected whenever the continuous pH meter is offline for 30 minutes or longer.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor effluent at Monitoring Location EFF-001, and TER-001 for BOD, total coliform and TSS only, in accordance with Table E-3 and the testing requirements described in section IV.A.2 below:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
Effluent/River Dilution Ratio	--	Calculation	Continuous
Biochemical Oxygen Demand (5-day @ 20°Celsius) (BOD_5)	mg/L	24-hour Composite	1/Day
BOD_5	% removal	Calculate	1/Month
Total Suspended Solids (TSS)	mg/L	24-hour Composite	1/Day
TSS	% removal	Calculate	1/Month
pH	standard units	Meter	Continuous
Chlorodibromomethane	µg/L	Grab	1/Month
Cyanide, Total (as CN)	µg/L	Grab	1/Month
Dichlorobromomethane	µg/L	Grab	1/Month
Mercury, Total	ng/L	24-hour Composite	1/Month
Alkalinity (as $CaCO_3$)	mg/L	24-hour Composite	1/Month
Ammonia Nitrogen, Total (as N)	mg/L	24-hour Composite	1/Day
Chlorine, Total Residual	mg/L	Meter	Continuous
Cryptosporidium	oocysts/100 mL	Grab	1/Month
Chlorpyrifos	µg/L	Grab	1/Year

Parameter	Units	Sample Type	Minimum Sampling Frequency
Diazinon	µg/L	Grab	1/Year
Dissolved Organic Carbon	mg/L	24-hour Composite	1/Quarter
Dissolved Oxygen	mg/L	Meter	Continuous
Electrical Conductivity @ 25°Celsius	µmhos/cm	24-hour Composite	1/Week
Giardia	oocysts/100 mL	Grab	1/Month
Hardness, Total (as $CaCO_3$)	mg/L	24-hour Composite	1/Month
Methylmercury	ng/L	24-hour Composite	1/Month
Nitrate plus Nitrite, Total (as N)	mg/L	24-hour Composite	1/Week
Sulfur Dioxide or Sodium Bisulfite	mg/L	Meter	Continuous
Temperature	F°	Meter	Continuous
Total Coliform Organisms	MPN/100 mL	Grab	1/Day
Total Dissolved Solids	mg/L	24-hour Composite	1/Week
Total Kjeldahl Nitrogen	mg/L	24-hour Composite	1/Week
Total Organic Carbon	mg/L	24-hour Composite	1/Month
Whole Effluent Toxicity	(see section V)	(see section V)	(see section V)

2. **Table E-3 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-3:

   a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

   b. **Running Hourly Average Effluent/River Dilution Ratio.** The Discharger shall report the lowest, highest, and average ratio calculated for each day.

   c. **24-hour composite samples** shall be collected from a 24-hour flow proportional composite. In the event of composite malfunction, a grab sample may be substituted.

   d. **Handheld Field Meter.** A handheld field meter may be used for **temperature** and **pH**, provided the meter utilizes a U.S. EPA-approved

algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

e. **Temperature** and **pH** shall be recorded at the time of **ammonia** sample collection.

f. Effluent **pH** shall be measured continuously and tracked as a 20-minute running average. The highest and lowest 20-minute averages each day shall be reported.

g. **Total Residual Chlorine** must be monitored using an analytical method that is sufficiently sensitive to measure at the permitted level of 0.01 mg/L.

h. **Hardness** samples shall be collected concurrently with metals samples.

i. **Total Mercury and Methyl Mercury.** Unfiltered methyl mercury 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 U.S. EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2). The analysis of methyl mercury and total mercury shall be by U.S. EPA method 1630 and1631 (Revision E), respectively, with a **reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury**.

j. **Priority Pollutants.** For all priority pollutant constituents listed in Table E-3 (cyanide, chlorodibromomethane, dichlorobromomethane, and mercury) the RL shall be consistent with sections 2.4.2 and 2.4.3 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP) and the SSM Rule specified under 40 C.F.R. sections 122.21(e)(3)and 122.44(i)(1)(iv).

k. **Chlorpyrifos and Diazinon** shall be sampled using U.S. EPA Method 625M, Method 8141, or equivalent GC/MS method with a lower Reporting Limit than the Basin Plan Water Quality Objectives of 0.015 µg/L and 0.1 µg/L for chlorpyrifos and diazinon, respectively.

l. **Dissolved Organic Carbon monitoring** shall be conducted concurrently with pH and hardness sampling.

m. ***Giardia*** shall be analyzed using U.S. EPA Method 1623 or 1623.1.

n. ***Cryptosporidium*** shall be analyzed using U.S. EPA Method 1622, 1623, or 1623.1.

o. **Whole Effluent Toxicity monitoring** shall be in accordance with section V of this MRP. Ammonia samples shall be collected concurrently with whole effluent toxicity monitoring.

p. Samples for **total coliform organisms** shall be collected after chlorination and prior to dechlorination. The sample must be dechlorinated immediately after sample collection.

q. **Indeno(1,2,3-cd)pyrene** shall be sampled monthly for one year, beginning 1 January 2027 as part of the effluent and receiving water characterization described in section IX.C of the MRP, and quarterly thereafter until December 31, 2029.

r. BOD5, TSS, and total coliform shall be measured at Monitoring Location TER-001. All other parameters shall be measured at Monitoring Location EFF-001.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Toxicity Calendar Month, Quarter and Year.

1. **Toxicity Calendar Month.** The toxicity calendar month is defined as the period of time beginning on the day of the initiation of the routine toxicity monitoring to the day before the corresponding day of the next month if the corresponding day exists, or if not to the last day of the next month.

2. **Toxicity Calendar Quarter.** The toxicity calendar quarters **begin on 1 January, 1 April, 1 July, and 1 October** (i.e., from 1 January to 31 March, from 1 April to 30 June, from 1 July to 30 September, and 1 October to 31 December).

3. **Toxicity Calendar Year.** The toxicity calendar year **begins on 1 January** (1 January to 31 December), in years in which there are at least 15 days of discharge in at least one calendar quarter.

B. Chronic Toxicity Testing.

The Discharger shall meet the following chronic toxicity testing requirements:

1. **Instream Waste Concentration (IWC) for Chronic Toxicity.** The chronic toxicity IWC is 12.5 percent effluent.

2. **Routine Monitoring Frequency.** The Discharger shall perform routine chronic toxicity testing **once per toxicity calendar quarter** in quarters in which there are at least 15 days of discharge, concurrent with effluent ammonia sampling. While the Discharger is conducting a Toxicity Reduction Evaluation the routine monitoring may be reduced to two (2) tests per calendar year. When there is no effluent available to complete a routine monitoring test or MMEL test, the test shall not be required, and subsequent routine monitoring continues at the frequency specified in the permit.

3. **Sample Types.** Effluent samples shall be flow-proportional 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

4. **Chronic Toxicity MMEL Testing.** If a routine chronic toxicity monitoring test results in a "fail" at the IWC, then a maximum of two chronic toxicity MMEL tests shall be completed. The chronic toxicity MMEL tests shall be initiated within the same calendar month that the routine chronic toxicity monitoring test was initiated that resulted in the "fail" at the IWC. If the first chronic toxicity MMEL test results in a "fail" at the IWC, then the second chronic toxicity MMEL test is unnecessary and is waived.

5. **Additional Routine Monitoring Tests for TRE Determination.** A TRE is required when there is any combination of two or more MDEL or MMEL violations within a single toxicity calendar month or within two successive toxicity calendar months. In order to determine if a TRE is necessary when there is only one MDEL or MMEL violation in a single toxicity month, an additional routine monitoring test is required in the successive toxicity month. This additional routine monitoring test is not required if the Discharger is already conducting a TRE. This additional routine monitoring test could result in a violation of the MDEL and/or the need to conduct additional MMEL compliance tests per section V.B.4 above.

6. **Sample Volumes.** Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

7. **Test Species.** The testing shall be conducted using the most sensitive species, which is **water flea (Ceriodaphnia dubia)**. The Discharger shall conduct chronic toxicity tests with **water flea (Ceriodaphnia dubia)**, unless otherwise specified in writing by the Executive Officer. (see Section V.F.2 for more information on the determination of the most sensitive species).

8. **Test Methods.** Discharger shall conduct the chronic toxicity tests on effluent samples at the instream waste concentration for the discharge in accordance with species and test methods in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R02/013, 2002; Table IA, 40 C.F.R. part 136).

9. **Dilution and Control Water.** Dilution water and control water shall be prepared and used as specified in the test methods manual. If dilution water and control water is different from test organism culture water, then a second control using culture water shall also be used.

10. **Test Failure.** If the effluent chronic toxicity test does not meet all test acceptability criteria (TAC) specified in the referenced test method in EPA/821-R-02-013, the Discharger must conduct a Replacement Test as soon as possible, as specified in subsection B.10, below.

11. **Replacement Test.** When a required toxicity test for routine monitoring or MMEL compliance tests is not completed, a new toxicity test to replace the toxicity test that was not completed shall be initiated as soon as possible. The new toxicity test shall replace the routine monitoring or MMEL compliance tests, as applicable, for the toxicity calendar month in which the toxicity test that was not completed was required to be initiated, even if the new toxicity test is initiated in a subsequent month. The new toxicity test for routine monitoring or MMEL compliance tests, as applicable, and any MMEL compliance tests required to be conducted due to the results of the new toxicity test shall be used to determine compliance with the effluent limitations for the toxicity calendar month in which the toxicity test that was not completed was required to be initiated. The new toxicity test and any MMEL compliance tests required to be conducted due to the results of the new toxicity test shall not be used to substitute for any other required toxicity tests. Scenarios could occur in which a test is not initiated by a Discharger within the required time period. When this is caused by circumstances outside of the Discharger's control, that were not preventable with the reasonable exercise of care, the Central Valley Water Board will not require the test to be initiated within the originally required time period, provided that the Discharger promptly initiates, and ultimately completes, a replacement test. In such cases, the Central Valley Water Board must determine that the circumstances were not preventable with the reasonable exercise of care.

C. Quality Assurance and Additional Requirements. Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are below.

1. The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 (Chronic Freshwater and East Coast Methods) and Appendix B, Table B-1.

2. The null hypothesis (Ho) for the TST statistical approach is:

   Mean discharge IWC response ≤ RMD x Mean control response, where the chronic RMD = 0.75.

   A test result that rejects this null hypothesis is reported as "Pass." A test result that does not reject this null hypothesis is reported as "Fail."

3. The relative "Percent Effect" at the discharge IWC is defined and reported as:

   Percent Effect = ((Mean control response – Mean discharge IWC response) / Mean control response) x 100.

   This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations, i.e., a control and IWC. The purpose of this

statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC differs from the control, the test result is "Fail"). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

D. WET Testing Notification Requirements. The Discharger shall notify the Central Valley Water Board of test results exceeding the chronic toxicity effluent limitation (final and/or interim) within 2 business days after receipt of final laboratory report.

E. WET Testing Reporting Requirements. The Discharger shall submit the full laboratory report for all toxicity testing as an attachment to CIWQS for the reporting period (e.g., monthly, quarterly, semi-annually or annually) and provide the data (i.e., Pass/Fail) in the PET tool for uploading into CIWQS. The laboratory report shall include:

1. The valid toxicity test results for the TST statistical approach, reported as "Pass" or "Fail" and "Percent Effect" at the IWC for the discharge, the dates of sample collection and initiation of each toxicity test all results for effluent parameters monitored concurrently by the lab conducting the toxicity test(s).

2. The statistical analysis used in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010) Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.

3. Statistical program (e.g., TST calculator, CETIS, etc.) output results, including graphical plots, for each toxicity test.

F. Most Sensitive Species Screening. . The Discharger most recently completed its initial species sensitivity screening in February 2025 resulting in water flea (Ceriodaphnia dubia) as the most sensitive species. At 100% undiluted effluent the only species that exceeded 1 TUc across in the four quarters of testing was Ceriodaphnia dubia (>1 TUc for reproduction). These results shall be included with the ROWD until the next update to the sensitive species screening. The species sensitivity screening shall be conducted at least once every fifteen years, as follows, and the results of the most recent species sensitivity screening shall be submitted with the Report of Waste Discharge.

1. **Frequency of Testing for Species Sensitivity Screening.** Species sensitivity screening for chronic toxicity shall include, at a minimum, chronic WET testing four consecutive calendar quarters using the water flea (*Ceriodaphnia dubia*), fathead minnow (*Pimephales promelas*), and green algae (*Pseudokirchneriella subcapitata, also known as Selenastrum capricornutum*). The tests shall be performed at an IWC of no less than 100 percent effluent.

2. **Determination of Most Sensitive Species.** If a single test in the species sensitivity screening testing results in a "Fail" using the TST statistical approach, then the species used in that test shall be established as the most sensitive species. If there is more than a single test that results in a "Fail", then of the

species with results of a “Fail”, the species that exhibits the highest percent effect shall be established as the most sensitive species. If none of the tests in the species sensitivity screening results in a “Fail”, but at least one of the species exhibits a percent effect greater than **10** percent, then the single species that exhibits the highest percent effect shall be established as the most sensitive species. In all other circumstances, the Executive Officer shall have discretion to determine which single species is the most sensitive considering the test results from the species sensitivity screening. For subsequent species sensitivity screening, if the first two subsequent screening events result in no change in the most sensitive species, the Discharger may cease the subsequent species sensitive screening testing and the most sensitive species will remain unchanged.

The Executive Officer shall have discretion to allow the temporary use of the next appropriate species as the most sensitive species when the Discharger submits documentation and the Executive Officer determines that the Discharger has encountered unresolvable test interference or cannot secure a reliable supply of test organisms. The “next appropriate species” is a species in Table 1 of the Statewide Toxicity Provisions in the same test method classification (e.g., chronic aquatic toxicity test methods, acute aquatic toxicity test method), in the same salinity classification (e.g., freshwater or marine), and in the same taxon as the most sensitive species. When there are no other species in Table 1 in the same taxon as the most sensitive species (e.g., freshwater chronic toxicity tests), the “next appropriate species” is the species exhibiting the highest percent effect at the IWC tested in the species sensitivity screening other than the most sensitive species.

The most sensitive species shall be used for chronic toxicity testing for the remainder of the permit term. The Discharger may use the four most recent tests for use in determining the most sensitive species if the tests were conducted in a manner sufficient to make such determination. If the most sensitive species cannot be determined from the species sensitivity screening discussed above, the Discharger shall rotate the test species as the most sensitive species every toxicity calendar year as follows:

a. *Ceriodaphnia dubia* (survival and reproduction test) for the remainder of the toxicity calendar year this Order is effective;

b. *Pimephales promelas* (larval survival and growth test) for the entire toxicity calendar year following the toxicity calendar year this Order is effective;

c. *Pseudokirchnereilla subcapitata* (growth test) for the entire toxicity calendar year of the second year following the toxicity calendar year this Order is effective; and

d. Cycling back to *Ceriodaphnia dubia* (survival and reproduction test) after *Pseudokirchnereilla subcapitata* (growth test) and through the same rotation.

If a single test exhibits toxicity, demonstrated by a test that results in a "Fail" using the TST statistical approach, then the species used in that test shall be established as the most sensitive species until a subsequent Order rescinding this Order becomes effective.

G. Toxicity Reduction Evaluations (TRE)

1. **TRE Implementation.** The Discharger is required to conduct a TRE when there is any combination of two or more MDEL or MMEL exceedances within a single toxicity calendar month or within two successive toxicity calendar months. In addition, if other information indicates toxicity (e.g., results of additional monitoring, results of monitoring at a higher concentration than the IWC, fish kills, intermittent recurring toxicity), the Central Valley Water Board may require a TRE. A TRE may also be required when there is no effluent available to complete a routine monitoring test or MMEL compliance test.

   a. **Preparation and Implementation of Detailed TRE Action Plan.** The Discharger shall conduct TREs in accordance with an approved TRE Work Plan. Within 30 days of the test result that triggered the TRE, the Discharger shall submit to the Executive Officer a TRE Action Plan. The TRE Action Plan shall include the following information, and comply with additional conditions set by the Executive Officer:

      i. Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

      ii. Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

      iii. A schedule for these actions, progress reports, and the final report.

   b. The Central Valley Water Board recognizes that toxicity may be episodic and identification of causes and reduction of sources of toxicity may not be successful in all cases. The TRE may be ended at any stage if monitoring finds there is no longer toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location ESB-A through ESB-E

1. The Discharger shall conduct inspections of ESB-A and ESB-E when in use and keep a log related to the use of the concrete-lined emergency storage basin. In particular, the Discharger shall record the following when any type of wastewater is directed to the emergency storage basin:

   a. The date(s) when the wastewater is directed to the concrete-lined emergency storage basin(s).

b. How the wastewater was managed while in the concrete-lined emergency storage basin(s), when it was returned to the Facility's treatment system, and the measures taken to prevent a recurrence of the issue;

c. The type(s) of wastewater (e.g., untreated due to plant upset, tertiary treated) directed to the concrete-lined emergency storage basin;

d. The total estimated volume of wastewater directed to the concrete-lined emergency storage basin(s) (gallons); and

e. The freeboard available in the concrete-lined emergency storage basin.

f. The emergency storage basin(s) log shall be submitted with the monthly SMR's required in section X.B of the MRP.

2. The Discharger shall conduct regular observations and inspections of the concrete-lined emergency storage basin at the Facility; frequency of the inspection of the concrete-lined emergency storage basin shall be no less than once per 24 months. A summary of the inspections, including the dates, findings, and photo documentation of the inspection, including the berm condition, shall be included with the Annual Operations Report, as specified below in section X.D.2.f.

VII. RECYCLING MONITORING REQUIREMENTS

A. Monitoring Location REC-001

1. The Discharger shall monitor discharge from the Facility to the recycled water program at Monitoring Location REC-001 in accordance with Table E-4 and the testing requirements described in section VII.A.2 below:

Table E-4 Recycled Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Turbidity	NTU	Meter	Continuous
Total Coliform Organisms	MPN/100 mL	Grab	1/Day

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. The Discharger may use the Hach 5300 having received U.S. EPA approval of Hach 10258.

b. **Continuous Analyzers**. The Discharger shall report documented routine meter maintenance activities including date, time of day, and duration in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours, the Discharger shall obtain and report hourly manual and/or grab sample results.

c. **Turbidity**. Monitor and report daily average and maximum turbidity as a 15-minute average. Turbidity samples shall be taken at monitoring location FIL-001. The Turbidity monitoring sample location FIL-001 in Table E-8 meets the requirements for REC-001. Turbidity is reported as FIL-001 for NPDES reporting purposes and REC-001 for recycled water compliance reports.

d. **Total Coliform Organisms**. Samples for total coliform organisms shall be collected after chlorination and prior to dechlorination. The sample must be dechlorinated immediately after sample collection. Total coliform organisms samples from TER-001 may be used to meet this requirement when seasonal diversion does not occur.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger is required to participate in the Delta Regional Monitoring Program. 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 Order. 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 the individual Discharger data, may be used to help establish background receiving water quality for reasonable potential analyses (RPA’s) 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 the exceedance of a water quality objective.

A. Monitoring Locations RSWU-001 and RSWD-003

1. The Discharger shall monitor Sacramento River at Monitoring Locations RSWU-001 and RSWD-003 in accordance with Table E-9 and the testing requirements described in section VIII.A.2 below:

Table E-5 Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	cfs	Meter	Continuous
E. Coli Organisms	CFU/100 mL or MPN/100 mL	Grab	1/Quarter
pH	standard units	Grab	1/Quarter
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Quarter
Dissolved Organic Carbon	mg/L	Grab	1/Quarter
Dissolved Oxygen	mg/L	Grab	1/Quarter
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter
Temperature	°F	Grab	1/Quarter
Total Nitrogen	mg/L	Grab	1/Quarter
Turbidity	NTU	Grab	1/Quarter

2. **Table E-5 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.** 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. Monitoring for Sacramento River **flow** is required at Monitoring Location RSWU-001 only. Flow meters used to report flow at RSWU-001 are maintained by the United States Geological Service (USGS) and are not the responsibility of the Discharger.

    c. **Temperature** and **pH** shall be recorded at the time of **ammonia** sample collection.

3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSWU-001 and RSWD-003 when discharging to the Sacramento River. The direction of river flow shall be reported, and attention shall be given to the presence of:

    a. Floating or suspended matter;

    b. Discoloration;

    c. Bottom deposits;

    d. Aquatic life;

e. Visible films, sheens, or coatings;

f. Fungi, slimes, or objectionable growths; and

g. Potential nuisance conditions.

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

IX. OTHER MONITORING REQUIREMENTS

A. Filtration System Monitoring

1. **Monitoring Location FIL-001.** The Discharger shall monitor the filtration system at Monitoring Location FIL-001 in accordance with Table E-6 and the testing requirements described in section IX.A.2 below:

Table E-6 Filtration System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Turbidity	NTU	Meter	Continuous

2. **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. 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. The Discharger may use the Hach 5300 having received U.S. EPA approval of Hach 10258.

   b. For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours, the Discharger shall obtain and report hourly manual and/or grab sample results.

   c. Report daily average and maximum **turbidity**.

B. Pyrethroid Pesticides Monitoring.

The Discharger conducted baseline pyrethroid pesticides monitoring required in Order R5-2021-0019-02. Central Valley Water Board accepted and evaluated the sampling results and toxicity testing results; therefore, this Order does not require further pyrethroid pesticides monitoring at this time.

C. Effluent and Receiving Water Characterization

1. **Monitoring Frequency**

   a. **Effluent Sampling.** Samples shall be collected from the effluent (Monitoring Location EFF-001) monthly, **between 1 January 2027 through 31 December 2027**.

   b. **Receiving Water Sampling.** While the Discharger is participating in the Delta RMP, as described in Attachment E, section VIII, this section only requires effluent characterization monitoring. However, the Report of Waste Discharge for the next permit renewal shall include, at minimum,

      i. One sample collected at the upstream receiving water Monitoring Location, RSW-001, **between 1 January 2027 through 31 December 2027**. The Discharger shall conduct upstream receiving water characterization monitoring in accordance with Table E-10 and the testing requirements described in section IX.E.4.

      ii. Quarterly samples for pH, temperature, and dissolved organic carbon shall be collected from the upstream and downstream receiving water Monitoring Locations, RSW-001 and RSW-003 respectively, **between 1 January 2027 through 31 December 2027**.

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

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 E-10.

4. The Discharger shall conduct effluent and receiving water characterization monitoring in accordance with Table E-7 and the testing requirements described in section X.C.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
34	Methyl Bromide (Bromomethane)	74-83-9	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
	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
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
101	1,2,4-Trichlorobenzene	120-82-1	µg/L	Grab

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
45	2-Chlorophenol	95-57-8	µg/L	Grab
46	2,4-Dichlorophenol	120-83-2	µg/L	Grab
47	2,4-Dimethylphenol	105-67-9	µg/L	Grab
49	2,4-Dinitrophenol	51-28-5	µg/L	Grab
82	2,4-Dinitrotoluene	121-14-2	µg/L	Grab
55	2,4,6-Trichlorophenol	88-06-2	µg/L	Grab
83	2,6-Dinitrotoluene	606-20-2	µg/L	Grab
50	2-Nitrophenol	88-75-5	µg/L	Grab
71	2-Chloronaphthalene	91-58-7	µg/L	Grab
78	3,3-Dichlorobenzidine	91-94-1	µg/L	Grab
62	Benzo(b)Fluoranthene	205-99-2	µg/L	Grab
52	4-Chloro-3-methylphenol	59-50-7	µg/L	Grab
48	2-Methyl-4,6-Dinitrophenol	534-52-1	µg/L	Grab
51	4-Nitrophenol	100-02-7	µg/L	Grab
69	4-Bromophenyl Phenyl Ether	101-55-3	µg/L	Grab
72	4-Chlorophenyl Phenyl Ether	7005-72-3	µg/L	Grab
56	Acenaphthene	83-32-9	µg/L	Grab
57	Acenaphthylene	208-96-8	µg/L	Grab
58	Anthracene	120-12-7	µg/L	Grab
59	Benzidine	92-87-5	µg/L	Grab
61	Benzo(a)Pyrene	50-32-8	µg/L	Grab
63	Benzo(ghi)Perylene	191-24-2	µg/L	Grab
64	Benzo(k)Fluoranthene	207-08-9	µg/L	Grab
65	Bis (2-Chloroethoxy) Methane	111-91-1	µg/L	Grab
66	Bis (2-Chloroethyl) Ether	111-44-4	µg/L	Grab
67	Bis (2-Chloroisopropyl) Ether	108-60-1	µg/L	Grab
68	Bis(2-Ethylhexyl) Phthalate	117-81-7	µg/L	Grab
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab
73	Chrysene	218-01-9	µg/L	Grab
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab
79	Diethyl Phthalate	84-66-2	µg/L	Grab
80	Dimethyl Phthalate	131-11-3	µg/L	Grab
86	Fluoranthene	206-44-0	µg/L	Grab
87	Fluorene	86-73-7	µg/L	Grab
88	Hexachlorobenzene	118-74-1	µg/L	Grab
89	Hexachlorobutadiene	87-68-3	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
94	Naphthalene	91-20-3	µg/L	Grab

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
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, Total	7429-90-5	µg/L	24-hour Composite
1	Antimony, Total	7440-36-0	µg/L	24-hour Composite
2	Arsenic, Total	7440-38-2	µg/L	24-hour Composite
15	Asbestos	1332-21-4	µg/L	24-hour Composite
3	Beryllium, Total	7440-41-7	µg/L	24-hour Composite
4	Cadmium, Total	7440-43-9	µg/L	24-hour Composite
5a	Chromium, Total	7440-47-3	µg/L	24-hour Composite
6	Copper, Total	7440-50-8	µg/L	24-hour Composite
	Copper, Dissolved	7440-50-8	µg/L	24-hour Composite
	Iron, Total	7439-89-6	µg/L	24-hour Composite
7	Lead, Total	7439-92-1	µg/L	24-hour Composite
8	Mercury, Total	7439-97-6	µg/L	24-hour Composite
NL	Mercury, Methyl	22967-92-6	µg/L	24-hour Composite
NL	Manganese, Total	7439-96-5	µg/L	24-hour Composite
9	Nickel, Total	7440-02-0	µg/L	24-hour Composite
10	Selenium, Total	7782-49-2	µg/L	24-hour Composite
11	Silver, Total	7440-22-4	µg/L	24-hour Composite
12	Thallium, Total	7440-28-0	µg/L	24-hour Composite
13	Zinc, Total	7440-66-6	µg/L	24-hour Composite

NON-METALS/MINERALS

CTR Number	Non-Metal/Mineral Parameters	CAS Number	Units	Effluent Sample Type
NL	Boron	7440-42-8	µg/L	24-hour Composite
NL	Chloride	16887-00-6	mg/L	24-hour Composite
14	Cyanide, Total (as CN)	57-12-5	µg/L	24-hour Composite
NL	Sulfate	14808-79-8	mg/L	24-hour Composite
NL	Sulfide (as S)	5651-88-7	mg/L	24-hour Composite

PESTICIDES/PCBs/DIOXINS

CTR Number	Pesticide/PCB/Dioxin Parameters	CAS Number	Units	Effluent Sample Type
110	4,4-DDD	72-54-8	µg/L	24-hour Composite
109	4,4-DDE	72-55-9	µg/L	24-hour Composite
108	4,4-DDT	50-29-3	µg/L	24-hour Composite
112	alpha-Endosulfan	959-98-8	µg/L	24-hour Composite
103	alpha-BHC (Benzene hexachloride)	319-84-6	µg/L	24-hour Composite
102	Aldrin	309-00-2	µg/L	24-hour Composite
113	beta-Endosulfan	33213-65-9	µg/L	24-hour Composite
104	beta-BHC (Benzene hexachloride)	319-85-7	µg/L	24-hour Composite
107	Chlordane	57-74-9	µg/L	24-hour Composite
106	delta-BHC (Benzene hexachloride)	319-86-8	µg/L	24-hour Composite
111	Dieldrin	60-57-1	µg/L	24-hour Composite
114	Endosulfan Sulfate	1031-07-8	µg/L	24-hour Composite
115	Endrin	72-20-8	µg/L	24-hour Composite
116	Endrin Aldehyde	7421-93-4	µg/L	24-hour Composite
117	Heptachlor	76-44-8	µg/L	24-hour Composite
118	Heptachlor Epoxide	1024-57-3	µg/L	24-hour Composite
105	gamma-BHC (Benzene hexachloride or Lindane)	58-89-9	µg/L	24-hour Composite
119	Polychlorinated Biphenyl (PCB) 1016	12674-11-2	µg/L	24-hour Composite
120	PCB 1221	11104-28-2	µg/L	24-hour Composite
121	PCB 1232	11141-16-5	µg/L	24-hour Composite
122	PCB 1242	53469-21-9	µg/L	24-hour Composite
123	PCB 1248	12672-29-6	µg/L	24-hour Composite
124	PCB 1254	11097-69-1	µg/L	24-hour Composite
125	PCB 1260	11096-82-5	µg/L	24-hour Composite
126	Toxaphene	8001-35-2	µg/L	24-hour Composite
16	2,3,7,8-TCDD (Dioxin) (including all 17 congeners)	1746-01-6	pg/L	Grab

CONVENTIONAL PARAMETERS

CTR Number	Conventional Parameters	CAS Number	Units	Effluent Sample Type
NL	pH	--	SU	Continuous
NL	Temperature	--	ºC	Continuous

NON-CONVENTIONAL PARAMETERS

CTR Number	Nonconventional Parameters	CAS Number	Units	Effluent Sample Type
NL	Foaming Agents (MBAS)	MBAS	mg/L	24-hour Composite
NL	Hardness (as CaCO3)	471-34-1	mg/L	24-hour Composite
NL	Specific Conductance (Electrical Conductivity or EC)	EC	µmhos /cm	24-hour Composite

CTR Number	Nonconventional Parameters	CAS Number	Units	Effluent Sample Type
NL	Total Dissolved Solids (TDS)	TDS	mg/L	24-hour Composite
NL	Dissolved Organic Carbon (DOC)	DOC	mg/L	24-hour Composite

NUTRIENTS

CTR Number	Nutrient Parameters	CAS Number	Units	Effluent Sample Type
NL	Ammonia (as N)	7664-41-7	mg/L	24-hour Composite
NL	Nitrate plus Nitrite, Total (as N)	14797-55-8	mg/L	24-hour Composite
NL	Phosphorus, Total (as P)	7723-14-0	mg/L	24-hour Composite

OTHER CONSTITUENTS OF CONCERN

CTR Number	Other Constituents of Concern	CAS Number	Units	Effluent Sample Type
NL	Trichlorofluoromethane	75-69-4	µg/L	Grab
NL	Xylenes	1330-20-7	µg/L	Grab
NL	Barium, Total	7440-39-3	µg/L	24-hour Composite
NL	Fluoride	16984-48-8	mg/L	24-hour Composite
NL	Molybdenum, Total	7439-98-7	µg/L	24-hour Composite
NL	Atrazine	1912-24-9	µg/L	Grab
NL	Carbofuran	1563-66-2	µg/L	Grab
NL	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	µg/L	Grab
NL	Simazine (Princep)	122-34-9	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-8:

   a. **Applicable to All Parameters.** Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

   b. **Grab Samples.** A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.

   c. **24-hour Composite Samples.** All 24-hour composite samples shall be collected from a 24-hour flow proportional composite.

   d. **Redundant Sampling.** The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, with the exception of hardness which shall be sampled

concurrently with the hardness-dependent metals (cadmium, chromium, lead, nickel, silver, and zinc).

e. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date, separated by no more than 24 hours.

f. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-17.

g. **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.

h. **Total Mercury and Methyl Mercury.** Unfiltered methyl mercury 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 methyl mercury and total mercury shall be by U.S. EPA method 1630 and1631 (Revision E), respectively, with a reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury.

i. **TCDD-Dioxin Congener Equivalents** shall include all 17 of the 2,3,7,8 TCDD dioxin congeners as listed in section 3 of the SIP.

j. **Ammonia (as N).** Sampling is only required in the upstream receiving water.

k. **Chlorpyrifos and Diazinon** shall be sampled using U.S. EPA Method 625M, Method 8141, or equivalent GC/MS method with a lower Reporting Limit than the Basin Plan Water Quality Objectives of 0.015 µg/L and 0.1 µg/L for chlorpyrifos and diazinon, respectively.

l. **Pesticides and PCBs.** N-Nitrosodimethylamine, 4,4-DDD, 4,4-DDE, 4,4-DDT, alpha-Endosulfan, alpha-BHC (Benzene hexachloride), Aldrin, beta-Endosulfan, beta-BHC (Benzene hexachloride), Chlordane, delta-BHC(Benzene hexachloride), Dieldrin, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, gamma-BHC (Benzenehexachloride or Lindane), Polychlorinated Biphenyl (PCB) 1016, PCB1221, PCB 1232, PCB 1242, PCB 1248, PCB 1254, PCB 1260,Toxaphene, Atrazine, Carbofuran, 1,2-Dibromo-3-chloropropane (DBCP),and Simazine (Princep) are only required to be sampled quarterly during the characterization monitoring.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

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

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). 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 monthly SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMRs are required even if there is no discharge. If no discharge occurs during the month, the monitoring report must be submitted stating that there has been no discharge.

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

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

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

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

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent

accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. **The Discharger shall submit SMRs** in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must

include a description of the requirement that was violated and a description of the violation.

c. The Discharger shall attach all final laboratory reports from all contracted commercial laboratories, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed.

7. The Discharger shall submit in the SMRs calculations and reports in accordance with the following requirements:

a. **Calendar Annual Average Limitations.** For constituents with effluent limitations specified as "calendar annual average" the Discharger shall report the calendar annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

c. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMRs. The percent removal shall be calculated as specified in section VII.A of the Waste Discharge Requirements.

d. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in section VII.D of the Waste Discharge Requirements.

e. **Dissolved Oxygen.** The Discharger shall report monthly in the SMR the dissolved oxygen concentrations in the effluent (Monitoring Location EFF-001) and the receiving water (Monitoring Locations RSWU-001 and RSWD-003).

f. **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.B of the Waste Discharge Requirements.

g. **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 Effluent Limitations IV.H and consistent with the Compliance Determination Language in section VII.I of the Waste Discharge Requirements.

C. Discharge Monitoring Reports (DMRs)

1. DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs 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/) 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) reporting level (RL), 3) method detection limit (MDL), and 4) analytical method. The analytical methods shall be sufficiently sensitive with RLs consistent with the SSM Rule per 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv), and with the Minimum Levels (MLs) in the SIP, Appendix 4. The "Reporting Level or RL" is synonymous with the "Method Minimum Level" described in the SSM Rule. If an RL is not less than or equal to the applicable water quality objective for a constituent, the Discharger shall explain how the proposed analytical method complies with the SSM Rule as outlined above in Attachment E, section I.F. Central Valley Water Board staff will provide a tool with the permit's Notice of Adoption to assist the Discharger in completing this requirement. The tool will include the constituents and associated applicable water quality objectives to be included in the Analytical Methods Report.

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. **Recycled Water Policy Annual Reports.** In accordance with section 3 of the Water Quality Control Policy for Recycled Water (Recycled Water Policy), the Discharger shall electronically submit an annual report of monthly data to the State Water Board by 30 April annually covering the previous calendar year using the State Water Board's GeoTracker website (https://geotracker.waterboards.ca.gov/). Information for setting up and using the GeoTracker system can be found in the *ESI Guide for Responsible Parties* document on the State Water Board's website for Electronic Submittal of Information (https://www.waterboards.ca.gov/ust/electronic_submittal/index.html).

   The annual report to GeoTracker must include volumetric reporting of the items listed in section 3.2 of the Recycled Water Policy (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf). A pdf of the upload confirmation from GeoTracker for the Recycled Water Policy Annual Report shall be uploaded into CIWQS annually as a technical report per Table E-15, to demonstrate compliance with this reporting requirement.

4. **Report of Waste Discharge (ROWD).** For the 5-year permit renewal, the Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing, at minimum, the following by the due date in the Technical Reports Table:

   a. Report of Waste Discharge (Form 200);

   b. NPDES Form 2A;

   c. NPDES Form 2S;

   d. **Salinity Evaluation and Minimization Plan.** The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge;

   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; and

   f. **Thermal Plan Exception Requests.** To continue Thermal Plan exceptions the Discharger shall submit updated Thermal Plan exception requests with the ROWD.

   g. **Most Sensitive Species Screening.** If needed, the Discharger shall perform subsequent species sensitivity screening to re-evaluate the most

sensitive species for chronic whole effluent toxicity testing in accordance with MRP section V.F and results submitted with the ROWD.

h. **Local Limits Evaluation.** In accordance with 40 C.F.R. section 122.44(j)(2)(ii) the Discharger shall provide a written technical evaluation of the need to revise the local limits under 40 C.F.R. section 403.5(c)(1)

5. **Title 22 Recycled Water Compliance Report**. The Discharger shall, on a monthly basis, certify in the monthly Self-Monitoring Report regarding the Facility's compliance with the Recycling Specifications in Section IV.C of the WDRs. The following information shall be included to demonstrate compliance:

   a. Monthly minimum free residual chlorine (as 5-minute average);

   b. Monthly minimum modal chlorine contact time (as 5-minute average);

   c. Monthly minimum free chlorine residual contact time (as a 5-minute average);

   d. Monthly maximum instantaneous individual filter loading rate (as 15-minute average);

   e. Monthly maximum 24-hour average filter effluent turbidity;

   f. Monthly instantaneous maximum filter effluent turbidity (as 15-minute average);

   g. Monthly maximum secondary effluent turbidity upstream of filtration (as a 15- minute average)

   h. Monthly maximum effluent total coliform organisms; and

   i. Monthly maximum 7-day median effluent total coliform organisms;

   The Discharger shall certify in the monthly Self-Monitoring Report that the Facility complied with the conditionally accepted Title 22 Engineering Report and Section IV.C of the WDRs. If non-compliance occurs, the monthly report shall discuss the non-compliance incident(s), and actions taken to correct the non-compliance. Upon request by Central Valley Water Board staff or DDW staff, the Discharger shall submit all monitoring data and information used to demonstrate compliance with the conditionally accepted Title 22 Engineering Report and Section IV.C of the WDRs. The Title 22 Recycled Water Compliance Reports shall include certification by the Discharger's legally responsible officer under penalty of perjury.

6. **Recycled Water Policy Annual Reports.** In accordance with Section 3 of the Water Quality Control Policy for Recycled Water (Recycled Water Policy), the Discharger shall electronically submit an annual report of monthly data to the State Water Board by 30 April annually covering the previous calendar year

using the State Water Board's GeoTracker website (https://geotracker.waterboards.ca.gov/). Information for setting up and using the GeoTracker system can be found in the ESI Guide for Responsible Parties document on the State Water Board's website for Electronic Submittal of Information (https://www.waterboards.ca.gov/ust/electronic_submittal/index.html).

The annual report to GeoTracker must include volumetric reporting of the items listed in Section 3.2 of the Recycled Water Policy (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf). A pdf of the upload confirmation from GeoTracker for the Recycled Water Policy Annual Report shall be uploaded into CIWQS annually as a technical report per Table E-14, to demonstrate compliance with this reporting requirement.

7. **Annual Pretreatment Reporting Requirements.** The Discharger shall submit annually a report to the Central Valley Water Board, with copies to U.S. EPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

   An annual report shall be submitted by the due date shown in the Technical Reports Table and include at least the following items:

   a. A summary of analytical results from representative sampling of the POTW's influent and effluent for those pollutants U.S. EPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users. Annually, this will consist of an initial full priority pollutant scan (see Appendix A to 40 C.F.R. part 423) during the first quarter, and quarterly samples analyzed only for those priority pollutants detected in the initial full scan. The sample types for each priority pollutant shall be consistent with the sample types specified in Table E-11 (Effluent Characterization Monitoring). The Discharger is not required to sample and analyze for asbestos. The Discharger shall submit the results of the annual priority pollutant scan electronically to the Central Valley Water Board using the State Water Board's CIWQS Program Website.

   b. A discussion of upset, interference, or pass-through incidents, if any, at the treatment plant, which the Discharger knows, or suspects were caused by nondomestic users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing

requirements, may be necessary to prevent pass-through, interference, or noncompliance with sludge disposal requirements.

c. The cumulative number of nondomestic users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of nondomestic user responses.

d. An updated list of the Discharger's significant industrial users (SIU's) including their names and addresses, or a list of deletions, additions and SIU name changes keyed to a previously submitted list. The Discharger shall provide a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall indicate which SIUs, or specific pollutants from each industry, are subject to local limitations. Local limitations that are more stringent than the federal categorical standards shall also be identified.

e. The Discharger shall characterize the compliance status through the year of record of each SIU by employing the following descriptions:

   i. Complied with baseline monitoring report requirements (where applicable);

   ii. Consistently achieved compliance;

   iii. Inconsistently achieved compliance;

   iv. Significantly violated applicable pretreatment requirements as defined by 40 C.F.R. section 403.8(f)(2)(vii);

   v. Complied with schedule to achieve compliance (include the date final compliance is required);

   vi. Did not achieve compliance and not on a compliance schedule; and

   vii. Compliance status unknown.

f. Semi-annual reports describing the compliance status of each SIU characterized by the descriptions in items i through vii above shall be submitted by **1 August** for period covering 1 January through 30 June, and by **25 March** (i.e., included as part of the annual report) for period covering 1 July through 31 December. The reports shall identify the specific compliance status of each such SIU and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the

covered period must be submitted. This semi-annual reporting requirement shall commence upon issuance of this Order.

g. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the SIU's. The summary shall include:

   i. The names and addresses of the SIU's subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

   ii. The conclusions or results from the inspection or sampling of each industrial user.

h. The Discharger shall characterize the compliance status of each SIU by providing a list or table which includes the following information:

   i. Name of SIU;

   ii. Category, if subject to federal categorical standards;

   iii. The type of wastewater treatment or control processes in place;

   iv. The number of samples taken by the POTW during the year;

   v. The number of samples taken by the SIU during the year;

   vi. For a SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

   vii. A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits.

   viii. Whether the facility is in significant noncompliance (SNC) as defined at 40 C.F.R. section 403.8(f)(2)(viii) at any time during the year;

   ix. A summary of enforcement or other actions taken during the year to return the SIU to compliance. Describe the type of action (e.g., warning letters or notices of violation, administrative orders, civil actions, and criminal actions), final compliance date, and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU into compliance;

   x. Restriction of flow to the POTW; and

   xi. Disconnection from discharge to the POTW.

i. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIU's;

j. A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning: the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal-authority, enforcement policy, funding levels, or staffing levels;

k. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases; and

l. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 C.F.R. section 403.8(f)(2)(viii).

Pretreatment Program reports shall be submitted electronically to the Central Valley Water Board via CIWQS submittal and the:

State Water Resources Control Board
NPDESWastewater@waterboards.ca.gov
and the
U.S. EPA Region 9 Pretreatment Coordinator
R9Pretreatment@epa.gov

8. **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 E-10 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	1 July 2030	MRP X.D.3
2	Analytical Methods Report	1 October 2026	MRP X.D.1
3	Analytical Methods Report Certification	1 October 2026	MRP IX.C.4
4	Annual Operations Report	1 February 2027	MRP X.D.3
5	Annual Operations Report	1 February 2028	MRP X.D.3
6	Annual Operations Report	1 February 2029	MRP X.D.3
7	Annual Operations Report	1 February 2030	MRP X.D.3
8	Annual Operations Report	1 February 2031	MRP X.D.3

Report #	Technical Report	Due Date	CIWQS Report Name
9	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2027	MRP X.D.7
10	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2028	MRP X.D.7
11	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2029	MRP X.D.7
12	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2030	MRP X.D.7
Intentionally left blank	Compliance Schedule for Final Effluent Limitations for Methylmercury WDR section VI.C.7.b	Intentionally left blank	Intentionally left blank
18	Notification of Full Compliance with Final Effluent Limitations for Methylmercury WDR section VI.C.7.b Signed by LRO	31 December 2030	WDR VI.C.7.b
Intentionally left blank	Other Reports	Intentionally left blank	Intentionally left blank
24	Annual Pretreatment Report	25 March 2027	MRP X.D.4
25	Semi-Annual SIU Compliance Status Reports	1 August 2026	MRP X.D.4.f
26	Annual Pretreatment Report	25 March 2028	MRP X.D.4
27	Semi-Annual SIU Compliance Status Reports	1 August 2027	MRP X.D.4.f
28	Annual Pretreatment Report	25 March 2029	MRP X.D.4
29	Semi-Annual SIU Compliance Status Reports	1 August 2028	MRP X.D.4.f
30	Annual Pretreatment Report	25 March 2030	MRP X.D.4
31	Semi-Annual SIU Compliance Status Reports	1 August 2029	MRP X.D.4.f
32	Annual Pretreatment Report	25 March 2031	MRP X.D.4
33	Semi-Annual SIU Compliance Status Reports	1 August 2030	MRP X.D.4.f

Table E-9 Note:

1. Beginning on 1 February 2027 and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on the previously submitted pollution prevention plan for mercury. **This annual report may be combined with the Pretreatment Annual Report and submitted as part of the report.** The progress reports shall discuss the effectiveness of the pollution prevention plan in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the pollution prevention plan.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1 Facility Information

Waste Discharge ID:	5A340108002
CIWQS Facility Place ID:	254981
Discharger:	Sacramento Area Sewer District
Name of Facility:	EchoWater Resource Recovery Facility Permit
Facility Address:	8521 Laguna Station Road
Facility City, State Zip:	Elk Grove, CA 95758
Facility County:	Sacramento County
Facility Contact, Title and Phone Number:	Clarence Lunde, Director of EchoWater Facility Operations, (916) 875-9000
Authorized Person to Sign and Submit Reports:	Christoph Dobson, District Engineer, (916) 876-6042
Mailing Address:	10060 Goethe Road, Sacramento, CA 95827
Billing Address:	Same as Mailing Address
Type of Facility:	Publicly Owned Treatment Works (POTW)
Major or Minor Facility:	Major
Threat to Water Quality:	1
Complexity:	A
Pretreatment Program:	Yes
Recycling Requirements:	Producer
Facility Permitted Flow:	181 million gallons per day (MGD), average dry weather flow
Facility Design Flow:	181 MGD, average dry weather flow
Watershed:	Sacramento-San Joaquin Delta

Receiving Water:	Sacramento River
Receiving Water Type:	Estuary

A. Sacramento Area Sewer District (hereinafter Discharger) is the owner and operator of the EchoWater Resource Recovery Facility Permit (hereinafter Facility), a Publicly-Owned Treatment Works (POTW).

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

B. The Facility discharges wastewater to the Sacramento River, a water of the United States within the Sacramento-San Joaquin Delta. The Discharger was previously regulated by Order R5-2021-0019-02 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0077682 adopted on 22 April 2021 and amended on 22 April 2021 and 14 October 2022, with an expiration date of 31 May 2026. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. When applicable, state law requires dischargers to file a petition with the State Water Board, Division of Water Rights and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce any applicable requirements under Water Code section 1211. This is not an NPDES permit requirement.

D. The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on 27 May 2025.

E. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Under 40 C.F.R. section 122.6(d), States authorized to administer the NPDES program may administratively continue State-issued permits beyond their expiration dates until the effective date of the new permits, if State law allows it. Pursuant to California Code of Regulations (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 provides wastewater treatment service to the Cities of Sacramento, Folsom, and West Sacramento, the communities of Courtland and Walnut Grove, and the Sacramento Area Sewer District. The Sacramento Area Sewer District service area includes the Cities of Elk Grove, Rancho Cordova, Citrus Heights, as well as portions of the unincorporated areas of Sacramento County. The population served is approximately

1.63 million people. The design average dry weather flow capacity of the Facility is 181 MGD.

The Discharger owns and operates the main trunk lines/interceptors feeding the Facility. The smaller diameter separate collection systems are owned and operated by the various contributing agencies and not by the Discharger and are regulated under State Water Board Order WQ 2022-0103-DWQ, Statewide General WDR's for Sanitary Sewer Systems. During wet weather the Facility is contracted to accept up to 60 MGD of wastewater and storm runoff from the City of Sacramento combined collection system. The City of Sacramento's combined collection system is regulated under Order R5-2026-0003.

The Facility discharges to the Sacramento River just downstream of the Freeport Bridge via an outfall diffuser. The outfall diffuser is approximately 300 feet long with 74 ports and is placed perpendicular to the river flow. At times, the river flows in the reverse direction northeast towards the City of Sacramento, due to tidal activity during low river flows. The Discharger diverts its discharge to emergency storage basins whenever these conditions exist. The Discharger has determined in studies that river flows of at least 1,300 cubic feet per second (cfs) and providing a flow ratio of at least 14 to 1 (river to effluent) are required to allow for adequate mixing of the effluent through the outfall diffuser.

A. Description of Wastewater and Biosolids Treatment and Controls

1. **Existing Facility.** The Facility is staffed and operated 24 hours per day and the liquid treatment process consists of a septage receiving station, a fats/oils/grease receiving station and storage tanks, influent pumps, mechanical bar screens, aerated grit removal, grit classifiers that wash and dewater grit, covered primary sedimentation tanks, primary effluent diversion/skimming facilities, primary effluent pumping facilities, biological nutrient removal (BNR) air activated sludge treatment facilities capable of removing ammonia and nitrate nitrogen, secondary clarification (sedimentation) with the ability to add coagulant upstream, tertiary treatment facilities (TTF) using granular media filtration and including coagulant dosing, disinfection with sodium hypochlorite in Disinfection Contact Basins, and de-chlorination with sodium bisulfite solution. The TTF produces a Title 22 equivalent effluent that meets water quality standards for unrestricted recycled water uses, including the irrigation of food crops. Supernatant effluent from the solids storage basins and biosolids recycling facility is treated in a Nitrifying Sidestream Treatment process to remove ammonia and produce nitrates for use as a natural odor control chemical in the influent sewers, influent channels, diversion structures, and primary sedimentation tanks. Fully treated, compliant effluent is discharged to the Sacramento River at Freeport through a diffuser, or delivered to recycled water users. Headspace odors at the treatment plant are controlled through a biological fixed media scrubber, a biological scrubbing tower, a chemical oxidizing tower, and carbon treatment towers.

   Treated effluent, untreated, or partially treated wastewater can all be diverted to lined emergency storage basins (ESBs) as needed for a variety of reasons

including maintenance, process upsets, diversions of flows in excess of treatment capacities, or to meet effluent flow, dilution, thermal, and disinfection requirements. Diverted flows may be discharged to the Sacramento River (compliant water only), or returned to the treatment plant influent for re-treatment (untreated or partially treated water). The treatment plant has 430 million gallons of emergency storage capacity in ESB-A, B, C1-C3, and D. ESB-D is used to store compliant effluent and has a pump station that can discharge flows to the effluent conduit that conveys flows to the Sacramento River. ESB-C1-C3 are dual use basins. The dual use basins can be used to store partially treated flows that must be returned for retreatment, or store fully treated flows that can be discharged through ESB-D. Before storing/discharging compliant flows, the treatment plant utilizes Standard Operating Procedures to ensure the basins are adequately cleaned. ESB-A and ESB-B store untreated or partially treated flows that are returned for retreatment.

The BNR activated sludge treatment facilities is designed to process up to 330 MGD. Flows in excess of 330 MGD will be stored in peak-shaving storage facilities (ESB's) and returned for processing through the BNR facilities when capacity is available. All wastewater will receive advanced secondary treatment through the BNR facilities. The tertiary filters will be designed to process flows up to 217 MGD, measured as a daily average. This Order requires seasonal disinfection requirements and the Facility will be operated differently during each season, as follows:

a. **1 May – 31 October.** The Facility will be operated to meet Title 22 or equivalent disinfection criteria, as described in Special Provision VI.C.6.a.

b. **1 November – 30 April.** In the descriptions below, "filtered" means tertiary filtration of BNR effluent under filter operations consistent with the design hydraulic loading rate necessary to comply with the Title 22, or equivalent, disinfection criteria.

   i. When the BNR effluent flow is less than 217 MGD, the treatment plant filters all wastewater to produce Title 22 equivalent wastewater.

   ii. When the BNR effluent flow exceeds 217 MGD, the treatment plant filters up to 217 MGD and flows in excess of 217 MGD are not required to be filtered.

   Filtered and non-filtered wastewater are conveyed to the DCBs (330 MGD capacity) for disinfection. A portion of the filtered flows are maintained separately (physical separation with air gap and monitoring) so that the filtered water can be used for Title 22 recycled water supply. These details are included in the approved Title 22 Report. All 330 MGD leaving the DCBs can be distributed to recycled water users per a separate General Order permit, or conveyed and discharged to the Sacramento River through the diffuser.

2. **Biosolids Treatment.** Solids are thickened by dissolved air flotation and gravity belt thickeners. Primary and secondary sludge is mixed. Fats, oils, and grease from the Biogas Enhancement Facility may be mixed to the waste and the mixed waste is sent to anaerobic digesters for approximately 15 days or more, stored at the sludge stabilization basins for 3 to 5 years, then harvested and injected into dedicated lined land disposal sites. Some biosolids are recycled with the Synagro Organic Fertilizer Company and the Discharger can dispose of biosolids at the Keifer Landfill as an emergency disposal option. Separate WDR's (Order R5-2015-0133), in conformance with California Code of Regulations (CCR), Title 27, division 2, subdivision 1, regulate the biosolids and solids storage and disposal facilities, the Class II dedicated land treatment units, unclassified solids storage basins, and the closed Class III grit and screening landfill.

3. **Future Wastewater Uses.** The Discharger is completing construction for the Harvest Water Project. This project, consisting of a new pumping station, approximately 41 miles of new pipelines, and service connections, will deliver up to 50,000 acre-feet per year of recycled water for irrigation and fish and wildlife habitat enhancement purposes.

4. **Reclamation and Reuse.** Consistent with previous Order R5-2021-0019-02, this Order allows the Discharger to reclaim disinfected secondary effluent and tertiary effluent for dust control and compaction on construction projects, landscape irrigation, wash down water, vehicle washing and grounds maintenance within the Facility boundaries, and for flushing of pipelines within the sewer collection system. It may also be used for in-plant process water and fire protection.

5. **Groundwater Corrective Action Plan (CAP).** The Discharger initiated a CAP in December 1995 and is currently regulated under separate WDR Order R5-2015-0133. The CAP is to address elevated constituent concentrations that were observed in samples from groundwater monitoring wells down gradient of the dedicated land disposal areas (DLD's) and the Class III landfill when compared to upgradient groundwater monitoring wells. Extraction wells are used for hydraulic control of the site. Characterization of the groundwater aquifer is documented in the reports submitted twice annually pursuant to WDR Order R5-2015-0133. The Discharger conveys the extracted groundwater from the CAP extraction wells, at an average pumping rate of approximately 0.4 MGD, to an onsite constructed wetlands or return flows to the Facility influent.

B. Discharge Points and Receiving Waters

1. The Facility is located in section 19, T7N, R5E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point 001 to the Sacramento River, a water of the United States within the legal boundary of the Sacramento-San Joaquin Delta, at a point latitude 38° 27' 15" N and longitude 121° 30' 00" W.

3. The Facility and Discharge Point 001 are located near the community of Freeport, south of the City of Sacramento.

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

Effluent limitations contained in Order R5-2021-0019-02 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2021-0019-02 are as follows:

Table F-2 Historic Effluent Limitations

Parameter	Units	Historic Effluent Limitations	Maximum Effluent Concentrations
Biochemical Oxygen Demand 5-day @ 20°Celsius (BOD_5)	milligrams per liter (mg/L)	AMEL 10 AWEL 15	Monthly Average: 2 Weekly Average: 10
Total Suspended Solids (TSS)	mg/L	AMEL 10 AWEL 15	Monthly Average: 4.5 Weekly Average: 2.3
Bis(2-Ethylhexyl)Phthalate	micrograms per liter (µg/L)	AMEL 8.9 ADEL 20	Monthly Average: ND Maximum Daily: ND
Chlorodibromomethane	µg/L	AMEL 22 ADEL 44	Monthly Average: 6.3 Maximum Daily: 6.3
Copper, Total	µg/L	AMEL 7.4 ADEL 12	Monthly Average: 2.9 Maximum Daily: 5
Cyanide, Total (as CN)	µg/L	AMEL 11 ADEL 22	Monthly Average: 7.9 Maximum Daily: 8.7
Dichlorobromomethane	µg/L	AMEL 31 ADEL 70	Monthly Average: 25 Maximum Daily: 25
Ammonia Nitrogen, Total (as N)	mg/L	AMEL 2.1 AWEL 3.2	Monthly Average: ND Weekly Average: ND
Ammonia Nitrogen, Total (as N) 1 April through 31 October	mg/L	AMEL 2.4 AWEL 3.2	Monthly Average: ND Weekly Average: ND
Ammonia Nitrogen, Total (as N) 1 November through 31 March	Pounds per day (lbs/day)	AMEL 3,200 AWEL 3,900	Monthly Average: 251 Weekly Average: 313
Nitrate Plus Nitrite, Total (as N)	mg/L	AMEL 16.1 AWEL 22	Monthly Average: 9.3 Weekly Average: 9.8
Nitrate Plus Nitrite, Total (as N)	lbs/day	AMEL 15,095	Monthly Average: 8,930
Settleable Solids	mL/L	AMEL 0.1 AWEL 0.2	Monthly Average: ND Weekly Average: ND
Mercury, Total	grams/year	1,043	3.7
Chlorine, Total Residual	mg/L	AMEL 0.011 MDEL 0.018	Monthly Average: Weekly Average:

Parameter	Units	Historic Effluent Limitations	Maximum Effluent Concentrations
Chlorpyrifos	µg/L	AMEL: Less than 1 AWEL: Less than 1	Monthly Average: Weekly Average:
Diazinon	µg/L	AMEL: Less than 1 AWEL: Less than 1	Monthly Average: Weekly Average:
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,300	Monthly Average:813
Methylmercury	grams/year	89	0.12
Temperature	°F	The maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSWU-001 by more than 20°F from 1 May through 30 September	16
Temperature	°F	The maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSWU-001 by more than 25°F from 1 October through 30 April	22
Total Coliform Organisms (May through October)	MPN/100 mL	7-day median 2.2 MPN/100 mL 30-day period 23 MPN/100 mL	ND ND
Total Coliform Organisms (November through April)	MPN/100 mL	Monthly median 2.2 MPN/100 mL Weekly median 23 MPN/100 mL At any time 240 MPN/100 mL	0 0 50
Acute Toxicity	% Survival		--
Chronic Toxicity	TUc		--

D. Compliance Summary – Not Applicable

E. Planned Changes

The Discharger is completing construction for the Harvest Water Project. This project, consisting of a new pumping station at the Facility, approximately 41 miles of new pipelines, and service connections, will deliver up to 50,000 acre-feet per year of drought-resistant recycled water to more than 16,000 acres of agricultural lands and environmental habitats in southern Sacramento County, as well as supply water to future urban users. The project is anticipated to be operational in 2027.

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 WDRs 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. Additionally, the adoption of land discharge requirements OR Title 22 water reclamation requirements for the Facility constitutes permitting of an existing facility that is categorically exempt from the provisions of CEQA pursuant to CCR, title 14, section 15301.

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 Sacramento River 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	Sacramento River	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).
--	Groundwater	Existing: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PROC).

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. **Thermal Plan.** The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) on 7 January 1971 and amended this plan on 18 September 1975. The Thermal Plan contains temperature objectives for surface waters.

The Thermal Plan is applicable to the discharge form the Facility. For the purposes of the Thermal Plan, the Discharger is considered to be an Existing Discharger of Elevated Temperature Waste to an Estuary. The Thermal Plan in section 5.A contains the following temperature objectives for surface waters that are applicable to this discharge:

"*5. Estuaries*

A. Existing dischargers

(1) Elevated temperature waste discharges shall comply with the following:

a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.

b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

d. Additional limitations shall be imposed when necessary to assure protection of beneficial uses."

i. **Thermal Plan Exceptions.** The Discharger requested limited exceptions to Thermal Plan Objectives 5A(1)(a) and 5A(1)(b). The Thermal Plan allows regional boards to provide exceptions to specific water quality objectives in the Thermal Plan so long as the exceptions comply with CWA section 316(a) and federal regulations. The applicable exception is promulgated in 40 C.F.R. section 125.73(a), which provides that, "*Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the director that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection*

and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made." The Thermal Plan requires that the State Water Board concur with any exceptions prior to them becoming effective.

The Central Valley Water Board has considered the applicability of the Thermal Plan exceptions for the Facility's discharge. Based on all evidence in the record the Central Valley Water Board finds that the Discharger has adequately demonstrated through comprehensive thermal effect studies that the effluent and receiving water limitations based on the Thermal Plan are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. The Central Valley Water Board also finds that the alternative limitations, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish, and wildlife in and on the Sacramento River and Delta. The detailed rationale supporting the Thermal Plan exceptions is provided in Attachment I.

In accordance with 40 C.F.R. section 125.73(a), this Order grants the following exceptions to Thermal Plan objectives 5A(1)(a):

(a) **Thermal Plan Objective 5A(1)(a) Exception:**

The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than:

25°F from 1 October through 30 April;

and

20°F from 1 May through 30 September

On 14 January 2016, Central Valley Water Board staff provided technical justification for the Thermal Plan exceptions to the State Water Board for their review.(Memorandum from Pamela Creedon, Executive Officer, Central Valley Water Board to Tom Howard, Executive Director, State Water Board, 14 January 2016) The State Water Board adopted Resolution 2016-0036 on 21 June 2016, which provided concurrence with the Central Valley Water Board's action granting the Discharger an exception to the Thermal Plan and adopting the alternative, less stringent thermal effluent and receiving water limitations.

State Water Board Resolution 2016-0036 further states, "*The alternative limitations shall be reviewed by the Central Valley Regional Water Board at the time of any renewal of SRWTP's discharge permit to determine whether they assure protection and propagation of balanced indigenous communities of aquatic life in the vicinity of the discharge as required by CWA 316(a) and 40 C.F.R. 125.73*." The Discharger submitted an updated Thermal Plan exception request to the Central Valley Water Board on 17 May 2025, which requested this Order carry forward the existing Thermal Plan exceptions with no additional changes or conditions. Based on the Discharger's updated Thermal Plan exception request, Central Valley Water Board staff recommend retaining the Thermal Plan exceptions to the applicable Thermal Plan Objective provided in Orders R5-2016-0020-01 and R5-2021-0019-02. Since no changes have been made to the approved Thermal Plan exceptions in Orders R5-2016-0020-01 and R5-2021-0019-02 and no conditions have been added in this Order, further State Water Board concurrence is not required.

d. **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.

e. **Statewide Toxicity Provisions.** On December 1, 2020, the State Water Board adopted State Policy for Water Quality Control: Toxicity Provisions (Toxicity Provisions) which established statewide numeric water quality objectives for both acute and chronic toxicity, using the TST, and a program of implementation to control toxicity. On October 5, 2021, the State Water Board adopted a resolution confirming that the Toxicity Provisions were adopted as a State Policy for Water Quality Control, for all inland surface waters, enclosed bays, estuaries, and coastal lagoons of the state, regardless of their status as waters of the United States. The Toxicity Provisions establish a uniform regulatory approach to provide consistent protection of aquatic life beneficial uses and protect aquatic habitats and life from the effects of known and unknown toxicants. The Toxicity Provisions were approved by OAL on April 25, 2022, and by U.S. EPA on May 1, 2023.

On December 14, 2023, the State Water Board applied for U.S. EPA Region IX review and approval of a limited-use alternative test procedure (ATP), for the use of one-effluent concentration when conducting whole effluent toxicity (WET) testing, pursuant to 40 Code of Federal Regulations

section 136.5 (Aug. 28, 2017). The application is specific to acute or chronic WET tests in Table 1 of the application when using the Test of Significant Toxicity (TST) statistical approach (U.S. EPA, 2010) for analyzing the data. The application is being sought for all dischargers or facilities in the State of California and their associated laboratories. The ATP application is still pending with U.S. EPA.

The use of the TST has been the subject of litigation. In December 2024, the Second District Court of Appeal upheld the use of the TST in an NPDES permit in the case Camarillo Sanitary District v. California Regional Water Quality Control Board - Los Angeles Region.

A separate legal challenge to the State Water Board's adoption of the Toxicity Provisions originated in Fresno County Superior Court on July 18, 2022, through a petition for writ of mandate filed by Camarillo Sanitary District, City of Simi Valley, City of Thousand Oaks, Central Valley Clean Water Association, and Clean Water SoCal (formerly known as Southern California Alliance of Publicly Owned Treatment Works) (Petitioners) . One of the claims was that the Toxicity Provisions was inconsistent with the Clean Water Act. On October 9, 2023, the superior court denied the petition in its entirety.

On December 19, 2023, three of the Petitioners filed a notice of appeal of the Fresno Superior Court's decision upholding the Toxicity Provisions. On August 5, 2025, the Fifth District Court of Appeal issued a published opinion holding that the TST statistical approach, which is an integral component of the Toxicity Provisions, cannot be utilized in NPDES permitting to evaluate WET data because the TST is not an approved method under 40 Code of Federal Regulations Part 136. The Court of Appeal did not, however, disturb the Toxicity Provisions' use of the TST as a part of its water quality objectives. The State Water Board prevailed on all other claims in the litigation. The Court of Appeal's decision became final on September 4, 2025.

On September 15, 2025, the State Water Board filed a petition for review of the Fifth Circuit Court of Appeal's decision with the California Supreme Court. On November 12, 2025, the California Supreme Court granted review. The issues to be briefed and argued are limited to the issues raised in the State Water Board's petition for review.

Pending the California Supreme Court's review, the opinion of the Fifth Circuit Court of Appeal is not binding on the Water Boards. However, the opinion may be cited, not only for its persuasive value, but also for the limited purpose of establishing the existence of a conflict in authority.

In accordance with Water Code sections 13146 and 13247, the Regional Board must fully implement the water quality objectives and their implementation procedures in the Toxicity Provisions. The numeric water

quality objectives for chronic and acute toxicity established by the Toxicity Provisions, which are based on the TST, were approved by U.S. EPA and remain in effect. As such, the numeric water quality objectives continue to serve as the applicable federal water quality standards in California.

The Water Boards must also continue to comply with federal Clean Water Act NPDES regulations for determining reasonable potential and establishing applicable water quality-based effluent limitations (WQBELs). NPDES regulations (40 CFR § 122.44(d)(1)(vii)(A)) require that all WQBELs be derived from and comply with all applicable water quality standards. Moreover, although the Toxicity Provisions left in place narrative water quality objectives for aquatic toxicity in regional water board water quality control plans (basin plans), the Toxicity Provisions did supersede basin plan provisions and portions of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) for implementing narrative water quality objectives. As such, there are currently no basin plan or SIP procedures in effect for implementing narrative water quality objectives to determine reasonable potential as required by 40 CFR § 122.44(d)(1)(ii). As a result, the Regional Board must fully implement all of the Toxicity Provisions.

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

3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's

antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") (State Anti-Degradation Policy). The State Anti-Degradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Anti-Degradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. The Board finds this order is consistent with the Federal and State Water Board antidegradation regulations and policy.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels (MCLs) 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. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that "the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective".

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to Water Code section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

9. **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 regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The State Water Board Water Quality Order 2014-0057-DWQ, General Permit for Storm Water Discharges Associated with Industrial Activities (NPDES General Permit No. CAS000001), does not require facilities to obtain coverage if discharges of storm water are regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board (Finding I.B.20). The Discharger captures and treats all storm water that falls on-site. Therefore, coverage under the General Storm Water Permit is not required.

10. **Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The State Water Board amended the MRP for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. The State Water Board renewed the General Order and adopted Order 2022-0103-DWQ on 6 December 2022 and became effective 5 June 2023. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

    The Discharger is subject to the requirements of, and must comply with, State Water Board Order 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as amended by State Water Board Order WQ 2013-0058-EXEC, and renewed by State Water Board Order 2022-0103-DWQ and any subsequent order.

11. **Sewage Sludge and Biosolids.** This Order does not authorize any act that results in violation of requirements administered by U.S. EPA to implement 40 C.F.R. Part 503, Standards for the Use or Disposal of Sewage Sludge. These standards regulate the final use or disposal of sewage sludge that is generated during the treatment of domestic sewage in a municipal wastewater treatment facility. The Discharger is responsible for meeting all applicable requirements of 40 C.F.R. Part 503 that are under U.S. EPA's enforcement authority.

12. **Findings on Water Quality Impacts in Disadvantaged or Tribal Communities and Environmental Justice Concerns.** Consistent with Water Code section 13149.2, the Central Valley Water Board has taken into account environmental justice, tribal impact, and racial equity considerations in issuing this Order. The discharges regulated by this Order may impact one or more disadvantaged communities or tribal communities. The Facility regulated by this Order discharges treated municipal wastewater to the Sacramento River and is subject to discharge limitations for the following constituents, given potential to cause or contribute to exceedances of water quality objectives in the receiving water, or due to an adopted Total Maximum Daily Load (TMDL), site-specific Basin Plan objective, or statewide policy: ammonia, biochemical oxygen demand, chlorine residual, chlorpyrifos, chronic toxicity, diazinon, dibromochloromethane, dichlorobromomethane, dissolved oxygen, methylmercury, nitrate plus nitrite, pH, temperature, total coliform, and total suspended solids. This Order includes a compliance schedule for attainment of final effluent limitations for methylmercury, consistent with the Basin Plan. These provisions are carried over from the previous Order, R5-2021-0019-02, and this Order otherwise remains largely unchanged from R5-2021-0019-02. This Order addresses potential adverse impacts to water quality from the Facility's discharge by setting prohibitions and limits on the discharge of wastewater, requiring ongoing monitoring and reporting of the discharged wastewater and receiving water, and imposing other specifications on the facility's wastewater treatment operations.

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 northern portion of the Sacramento-San Joaquin Delta, which includes the Sacramento River, includes chlordane, chlorpyrifos, dichlorodiphenyltrichloroethane (DDT), diazinon, dieldrin, group A pesticides, invasive species, mercury, polychlorinated biphenyls (PCB's), and toxicity .

2. Total Maximum Daily Loads (TMDLs). Table F-4, below, identifies the 303(d) listings and TMDL's for the northern portion of the Sacramento-San Joaquin Delta. The 303(d) listings and TMDLs have been considered in the development of the Order. This Order 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.

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

Pollutant	Potential Sources	TMDL Status
Chlordane	Source Unknown	Planned for Completion 2029
Chlorpyrifos	Source Unknown	Adopted and Effective (10 October 2007)
DDT	Source Unknown	To be determined (see table note)
Diazinon	Source Unknown	Adopted and Effective (10 October 2007)
Dieldrin	Source Unknown	To be determined (see table note)
Group A Pesticides	Source Unknown	To be determined (see table note)
Invasive Species	Source Unknown	To be determined (see table note)
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)
PCB's	Source Unknown	To be determined (see table note)
Toxicity	Source Unknown	Planned for Completion 2027

Table F-4 Note:

1. This impairment is not currently prioritized for TMDL development during the permit period. The date of completion for a TMDL will be updated in future permit revisions should the prioritization of this impairment change.

E. Other Plans, Polices and Regulations

1. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27).** Title 27 regulations contain the State Water Board's water quality regulations for discharges of solid wastes to land. Exemption from Title 27 is provided if the discharges of domestic sewage or treated effluent are regulated by WDR's and are consistent with applicable water quality objectives and treatment or storage facilities associated with municipal wastewater treatment plants, provided solid wastes are discharged only in accordance with Title 27. Historically discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or storage ponds, have been exempt from the requirements of Title 27 based on section 20090 et seq. However, the State Water Board issued a decision on another municipal wastewater treatment plant, the City of Lodi, that storage basins must be part of the treatment process in order to be included in the Title 27 exemptions.

   The Facility contains solids storage, land disposal and emergency influent and effluent storage. A determination has been made by the Central Valley Water Board whether the facilities meet the exemptions from Title 27. These facilities include the Solid Storage Basins (SSB's), Dedicated Land Disposal areas (DLD's), and ESB's. The Central Valley Water Board's findings regarding Title 27 exemptions are discussed below.

   a. **Solids Storage Basins (SSB's).** The SSB's are unlined storage ponds for anaerobically digested primary and secondary sludge and scum. The SSB's receive about 6,000 tons of wet sludge per day. The digested sludge has about 0.4 to 3 percent solids and is composed of 50 to 80 percent volatile solids. Digested sludge may also contain variable concentrations of contaminants such as heavy metals, chlorinated hydrocarbons and pathogens. The sludge remains in the basins from 3 to 5 years prior to discharge to the DLD's. The SSB's provide additional stabilization treatment, storage and evaporation of the sludge. In July 2009, the Discharger installed six new wells to monitor groundwater water quality. The results from those wells will determine if the SSB's are impacting groundwater and need to be lined. The SSB's are governed by Order R5-2015-0133.

   b. **Dedicated Land Disposal Areas (DLD's).** The DLD's are lined land disposal units that receive stabilized sludge from the SSB's. The semi-liquid sludge is applied to the DLD's by subsurface injection during dry seasons. To prevent leaching of heavy metals, the Discharger applies lime to maintain proper soil pH. The DLD's are not exempt from Title 27 and are governed by Order R5-2015-0133.

   c. **Corrective Action Program (CAP).** During the 1990's, the groundwater beneath the DLD's were found to be impacted by elevated concentrations of nitrates, chlorides and total dissolved solids. To mitigate the impacted

groundwater, the Class III landfill that took grit and screenings was closed and the DLD's were either lined or closed. The Discharger implemented a CAP in December 1995 to remediate the impacted groundwater and it consisted of extraction wells down gradient of the DLD's. The extraction wells keep the groundwater from migrating off the Facility site. Following extraction, the groundwater is either redirected to wetlands or returned to the Facility's influent for treatment. The CAP is operational and is regulated under Order R5-2015-0133.

d. **Emergency Storage Basins (ESB's).** The Facility includes seven ESB's, ESB-A, B, C1, C2, C3, D, and E, with a total capacity of 445 million gallons (MG). All ESBs (A, B, C1, C2,C3, and D) are concrete lined. The capacities of the ESBs at 112 ft water surface elevation are as follows: ESB-A – 22 MG, ESB-B – 27 MG, ESB-C1 – 75 MG, ESB-C2 – 78 MG, ESB-C3 – 75 MG, ESB-D 75 MG. The purpose of ESB-A and ESB-B are to store diverted influent or primary effluent flows above the hydraulic capacity (peak wet weather flows) of the Facility, provide equalization capacity for diurnal primary effluent flows, and store diverted effluent flows to meet various conditions to comply with this Order. ESB-A is also used to store flows for maintenance purposes. ESB-A and ESB-B are typically used to store excess influent flows. Overflow from ESB-A discharges to lined ESB-B that can, if necessary, overflow to lined ESB-C1, ESB-C2, and ESB-C3. Flow stored in ESB-A and ESB-B is always returned to the headworks for treatment. Flow stored in ESB-C1, ESB-C2, and ESB-C3 may be discharged if compliant final effluent, or returned to the headworks for re-treatment if non-compliant. Final effluent may be diverted to ESB-B, ESB-C1, ESB-C2, ESB-C3 and ESB-D and not discharged to the Sacramento River to maintain the minimum 14:1 river to effluent ratio and maintain compliance with effluent limitations for temperature and chlorine residual. Since construction of ESB-D, ESB-A is typically only used to store excess influent flows or for maintenance purposes. ESB-A, ESB-B, ESB-C, and ES-D are exempt from Title 27 pursuant to section 20090(a) since these basins are integral to protecting the treatment processes from washing out due to peak wet weather flows or for storage of diverted flow to comply with the conditions of this Order. ESB-A, ESB-B, ESB-C1, ESB-C2, and ESB-C3 have washdown systems for cleaning the basins of any settled material after use, and drainage systems for individually returning contents of each basin to the influent sewer. An underdrain pumping system protects the basin floors from damage due to groundwater uplift forces.

ESB-E is part of the surge relief mechanism and designed to relieve water hammer effects in the influent conduit. ESB-E stores raw influent in an unlined earthen 20 MG basin and is exempt from Title 27 pursuant to section 20090(a).

The Discharger has been approved to use ESB-C1, ESB-C2, and ESB-C3 as dual use basins. The Discharger may use the basins to store partially or untreated wastewater to be returned to the Facility headworks for re-treatment, or fully treated wastewater for discharge to the Sacramento River. The Discharger has submitted a study and interim Standard Operating Procedures (SOPs) for cleaning ESB-C basins after storage of partially treated water. The Discharger also submitted isolation SOPs to ensure partially treated water does not come into contact with fully treated water. The Central Valley Water Board approved the SOPs on 24 July 2020, and the Discharger may update these SOPs upon completion of the Flow Equalization project and submit the updated SOPs to the Central Valley Water Board for final approval by the Executive Officer.

2. **Water Board's Actions to Protect Beneficial Uses of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.** The Central Valley Water Board adopted Resolution R5-2007-0161, *Water Board's Actions to Protect Beneficial Uses of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* on 6 December 2007. The purpose of the resolution is to identify and implement actions needed to protect the San Francisco/Sacramento-San Joaquin Delta beneficial uses. Some actions include exercising the State Water Board's water rights authority over water right decisions and exercising the San Francisco Bay Regional Water Quality Control Board's and Central Valley Water Board's authority over controlling water quality in the Delta.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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 water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR section122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define

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

3. **Prohibition III.C (No controllable condition shall create a nuisance**). This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance

4. **Prohibition III.D (No discharge of hazardous waste)**. This prohibition is based on CCR, title 22, section 66261.1 et seq, that prohibits discharge of hazardous waste.

5. **Prohibition III.E (No discharge when the Sacramento River instantaneous flow is less than 1,300 cfs) and Prohibition III.F (No discharge when there is less than 14:1 (river to effluent) flow ratio)**. Previous Orders 5-00-188, R5-2010-0114-04, R5-2016-0020-01, and R5-2021-0019-02 prohibited discharge unless the Sacramento River is flowing at more than 1,300 cfs and there is at least a 14 to 1 flow ratio (river: effluent). These conditions were based on previous studies that determined river flows of at least 1,300 cfs and a flow ratio of at least 14 to 1 (river to effluent) are required to allow adequate mixing of the effluent. Although the diffuser configuration has changed from 99 ports to 74 ports since the initial studies and more recent dye studies confirmed the dynamic modeling showing mixing zones, all of the analyses for antidegradation, thermal plumes, and dilution credits have been based on continuing these conditions. Therefore, consistent with previous Orders 5-00-188, R5-2010-0114-04, R5-2016-0020-01, and R5-2021-0019-02, these prohibitions have been retained this Order.

6. **Prohibition III.E (Average Dry Weather Flow)**. This prohibition is based on the design average dry weather flow treatment capacity rating for the Facility and ensures the Facility is operated within its treatment capacity.

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 Secondary Treatment Standards at

40 C.F.R. part 133. Regulations promulgated in 40 C.F.R. section 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the U.S. EPA Administrator. Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal regulations at 40 C.F.R. part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. A daily maximum effluent limitation for BOD_5 and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month. This Order requires Water Quality Based Effluent Limitations (WQBELs) that are equal to or more stringent than the secondary technology-based treatment described in 40 CFR part 133 (See section IV.C.3 of the Fact Sheet for a discussion on Pathogens which includes WQBELs for BOD_5 and TSS.)

b. **pH.** The secondary treatment regulations at 40 C.F.R. part 133 also require that pH be maintained between 6.0 and 9.0 standard units. This Order, however, requires more stringent WQBELs for pH to comply with the Basin Plan's water quality objectives for pH.

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-5 Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 30 AWEL 45
Biochemical Oxygen Demand (5-day @ 20°C)	% Removal	AMEL 85
pH	standard units	Instantaneous Min 6.0 Instantaneous Max 9.0
Total Suspended Solids	mg/L	AMEL 30 AWEL 45
Total Suspended Solids	% Removal	AMEL 85

Table F-5 Notes:

1. More stringent WQBELs for BOD_5, TSS, and pH are applicable and are established as final effluent limitations in this Order as described in section IV.C.3 of this Fact Sheet.

C. Water Quality-Based Effluent Limitations (WQBELs)

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. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary is discussed in section IV.C.3 of this Fact Sheet.

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, WQBELs 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 WQBELs when necessary is intended to protect the designated beneficial 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 WLAs developed and approved for the discharge.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plan on page 2-1 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*".

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

a. **Receiving Water and Beneficial Uses.** The Discharger discharges to the Sacramento River within the legal boundary of the Sacramento-San Joaquin Delta. 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.

The Sacramento River at Freeport is within the designated critical habitat for five federally listed fish species including winter- and spring-run Chinook salmon (Oncorhynchus tshawytscha), Steelhead (Oncorhynchus mykiss), Delta smelt (Hypomesus transpacificus), and Green sturgeon (Acipenser medirostris). Other listed wildlife species that feed on Central Valley fishes include the California Least Tern (Stenula antillarum brownie) and the Giant Garter snake (Thamnopsis gigas). In addition to the federally listed species, the California State Species of Special Concern include the Sacramento Splittail (Pogonichthys macrolepidotus) and the Central Valley Fall/Late-Fall Salmon (Oncorhynchus tshawytscha).

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

b. **Effluent and Ambient Background Data.** The Discharger completed major upgrades to the Facility treatment processes by completing the EchoWater Project in spring 2023.Therefore, the reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from March 2023 through December 2024, which includes effluent and receiving water data submitted in SMRs.

c. **Assimilative Capacity/Mixing Zone**

i. The CWA directs the states to adopt water quality standards to protect the quality of its waters. U.S. EPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR sections 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 the following, in part: *"In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board*

that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the EPA's Water Quality Standards Handbook and the [TSD]. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge."

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

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

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

A mixing zone shall not:

1. *compromise the integrity of the entire water body;*
2. *cause acutely toxic conditions to aquatic life passing thorough the mixing zone;*
3. *restrict the passage of aquatic life;*
4. *adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*

5. *produce undesirable or nuisance aquatic life;*
6. *result in floating debris, oil, or scum;*
7. *produce objectionable color, odor, taste, or turbidity;*
8. *cause objectionable bottom deposits;*
9. *cause nuisance;*
10. *dominate the receiving water body or overlap a mixing zone from different outfalls; or*
11. *be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."*

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

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

ii. **Receiving Water Characteristics**

The lower Sacramento River in the vicinity of the discharge is a large river with sufficient flows for dilution. The Sacramento watershed is a heavily managed system of reservoirs and diversions. The Sacramento River near the discharge location (Freeport) drains a 26,146-square-mile basin that spans the entire northern Central Valley of California from the crest of the Coast Range to the crest of the Sierra Nevada. Flows in the Sacramento River are influenced by precipitation (rainfall and snowpack/snowmelt) but are also influenced by several reservoirs on the tributaries and main stem, which are managed for flood control, water supply, and hydroelectric power generation. Irrigation diversions and agricultural return flows also affect the river regime. Winter and spring flows in the Sacramento River often exceed 50,000 cfs. While summer flows average 10,000 cfs, they can fall below 4,000 cfs. Daily flow probabilities for the Sacramento River at Freeport, based on U.S. Geologic Survey gauged flow data from 1942-1989, indicate that there is only a 10 percent probability of flows less than or equal to 10,000 cfs, and a 10 percent probability of flows greater than 70,000 cfs. Therefore, typical flows in the Sacramento River range from 10,000 to

70,000 cfs. The critical low flows for the Sacramento River based on flow data at Freeport from 1970 to 2024 are shown in Table F-6, below.

Table F-6. Critical Receiving Water Flows

Critical Low Flows	Receiving Water Flow (cfs)
1Q10 (see table note 1. below)	5,100
7Q10 (see table note 2. below)	5,500
30Q5 (see table note 3. below)	7,300
Harmonic Mean (see table note 4. below)	15,000

Table F-6 Notes:

1. Lowest daily average flow with a return frequency of 10 years.
2. Lowest 7-day average flow with a return frequency of 10 years.
3. Lowest 30-day average flow with a return frequency of 5 years.
4. At Freeport from 1 January 1970 through 31 December 2014.

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

The Discharger provided an update to the dynamic modeling results in its mixing zone request provided with the ROWD (Technical Memorandum from Larry Walker Associates dated 13 May 2025) that reflects effluent data collected between March 2023 and December 2024 and an expanded historical ambient dataset to include data from 2011 to 2024. The long-term flow effluent and river periods were June 2021 to December 2024 and October 1969 to September 2024, respectively.

For completely mixed discharges, the Central Valley Water Board may grant a mixing zone and apply a dilution credit in accordance with section 1.4.2.1 of the SIP, based on the dilution ratio. For incompletely mixed discharges, the Discharger must perform a mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. The discharge is considered an incompletely mixed discharge; therefore, the Discharger conducted a mixing zone study.

A dynamic model framework was developed by Flow Sciences Incorporated to evaluate the mixing from the EchoWater Facility diffuser and compliance with Section 1.4.2.2 of the SIP. The dynamic model is based on current available tools including the California Simulation Model (CalSim 3), Delta Simulation Model 2 (DSM2), FLOWMOD, and a Longitudinal Dispersion Model (LDM) to simulate hourly percent effluent concentrations in the Sacramento River at six near-field locations downstream of the EchoWater Facility diffuser at

30 feet, 60 feet, 100 feet, 175 feet, 350 feet, and 700 feet as shown in Figure F-1 and are described below. The Discharger submitted an updated Mixing Zone Request Report dated 13 May 2025 to request continued mixing zones for certain constituents.

CalSim 3 – The California Department of Water Resources (DWR) and the U.S. Department of the Interior, Bureau of Reclamation (USBR jointly developed a new version of CalSim that simulates Central Valley Project (CVP) and State Water Project (SWP) operations. The new version, known as CalSim 3, replaces its predecessor, CalSim II, for conducting planning studies relating to operations of the two projects. DWR led development of the Sacramento Valley portion of CalSim 3. CalSim 3 provides flow values on a monthly time step which FSI evenly distributed for a month into hourly rates to match the temporal resolution of other model elements (see the DSM2 description in the next section below) and consider tidal effects.

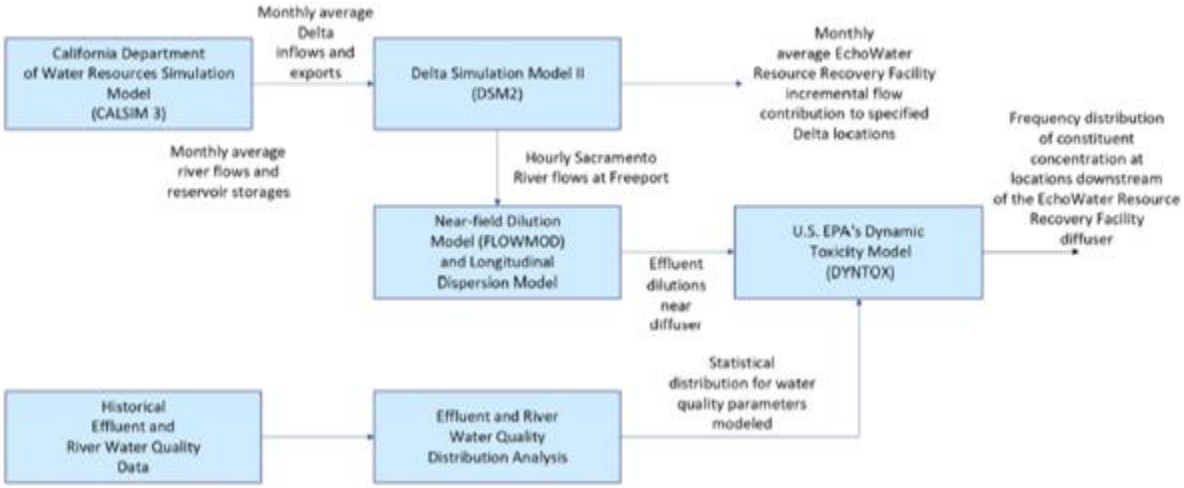
DSM2 – USGS and others developed the components of DSM2, including development of QUAL2E. DSM2 is a one-dimensional mathematical model for dynamic simulation of one-dimensional hydrodynamics including water quality and particle tracking in a network. DSM2 calculates stages, flows, velocities, mass transport processes for conservative and non-conservative constituents including salts, water temperature, dissolved oxygen, and trihalomethane formation potential, and transport of individual particles. DSM2 is used in the Dynamic Model to represent conditions as they move downstream between CalSim 3 nodes.

FLOWMOD – FLOWMOD is a three-dimensional hydrodynamic model developed by FSI for use in simulating mixing patterns of flow exhibited within various hydraulic structures, rivers, and lakes. The model is predicated on the principles of computational fluid dynamics and considers the basic forces and energy of the mixing fluid. In this approach, the three-dimensional time-averaged Navier-Stokes fluid flow equations with a k-epsilon turbulence model are discretized and solved over a finite-difference grid across the modeling domain.

Water Quality Frequency Distribution and DYNTOX – The Dynamic Model uses a modified version of EPA's water quality assessment model DYNTOX along with frequency distributional inputs to represent water quality. FSI and the Discharger developed this DYNTOX model originally for the Facility EIR (FSI, 2013) as well as 2016 and 2021 NPDES Permit renewals to calculate the concentration of constituents in the Facility effluent that results in the permissible exceedance rate of water quality standard at six locations downstream from the diffuser (30, 60, 100, 175, 350, and 700 feet) for 100 years of climatic and flow data. In this way, an effluent condition protective of downstream

beneficial uses can be used to calculate a corresponding (protective) effluent limitation consistent with the SIP requirements.

Figure·F-1.·Dynamic·Model·Flow·Diagram¶



The Dynamic Model outputs the average fraction (in decimal form) of effluent to Sacramento River water volume within the discharge plume at six different transects (cross-sections) downstream of the diffuser.

The 100-year record of hourly average effluent fraction at the six different transect distances downstream of the Facility diffuser (i.e., “downstream mixing condition") were evaluated to determine the probability of occurrence. Because the model uses the CalSim 3 operational rules and historical climatic data, the model characterizes long-term historical climatic conditions and the resulting river flows. Therefore, the results are useful for a long-term characterization and as a reference (i.e. “lookup") table for other model components or subsequently for dilution values used in static effluent limitation calculation.

The Dynamic Model refers to the lookup table to extract the hydraulic mixing condition for a specified river and effluent flow condition. The Dynamic Model recursively evaluates the range of all possible hydraulic mixing, ambient water quality, and effluent water quality conditions.

iv. **Evaluation of Available Dilution for Acute Aquatic Life Criteria.** U.S. EPA Region VIII, in its “*EPA Region VIII Mixing Zones and Dilution Policy*”, recommends no dilution for acute aquatic life criteria, stating the following, “*In incomplete mix situations, discharge limitations to implement acute chemical-specific aquatic life criteria and narrative (no acute toxicity) criteria shall be based on achieving*

such acute criteria at the end-of-pipe (i.e., without an allowance for dilution). This approach is intended to implement the narrative requirement prohibiting acutely toxic conditions in the mixing zone." The Discharger has requested an acute mixing zone for compliance with acute water quality criteria.

The Discharger requested an acute aquatic life mixing zone that is 300 feet wide and extends 60 feet downstream of the diffuser in their May 2025 Mixing Zone Request. The requested acute mixing zone meets the requirements of the SIP as follows:

(1) Shall not compromise the integrity of the entire waterbody – The TSD states that, "If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats."[1] The Sacramento River is approximately 600 feet wide at the surface. The acute mixing zone is approximately 60 feet long by 300 feet wide, located along the bottom half of the river. The Sacramento River is a very large waterbody. For the pollutants for which a mixing zone was requested, the acute mixing zone would not compromise the integrity of the entire waterbody.

(2) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The SIP requires that the acute mixing zone be appropriately sized to prevent lethality to organisms passing through the mixing zone. U.S. EPA recommends that float times through a mixing zone less than 15 minutes ensures that there will not be lethality to passing organisms. The acute mixing zone proposed by the Discharger extends 60 feet downstream from the outfall. Based on a minimum river velocity of 0.35 feet per second, the minimum float time is 2.8 minutes.[2] Furthermore, this Order includes an acute toxicity effluent limitation that requires compliance to be determined based on acute bioassays using 100 percent effluent. Compliance with these requirements ensures that acutely toxic conditions to aquatic life passing through the mixing zone do not occur.

(3) *Shall not restrict the passage of aquatic life* – The Discharger developed a dynamic model to evaluate the near-field effects of

[1] TSD, pg. 33

[2] Memorandum from Larry Walker Associates to the Discharger, *Mixing Zones and Prevention of Acutely Toxic Conditions*, dated 13 July 2009.

the discharge. The dynamic model was used to evaluate the zone of passage around the mixing zone where water quality objectives are met. The dynamic model indicates there is a zone of passage for aquatic life, which was verified through dye testing. The size of the zone of passage varies on either side of the river depending on the river geometry.[3] The surface of the Sacramento River is approximately 600 feet across and the bottom of the river is approximately 500 feet across. Based on the model, a zone of passage approximately 75 to 100 feet wide occurs along the west bank and 175 to 200 feet wide occurs along the east bank downstream of the discharge. Because the diffuser is located at the bottom of the river, the mixing zone will typically occupy only a portion of the bottom half of the river at the edge of the 60-foot mixing zone.

(4) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or state endangered species laws – The acute mixing zone will not cause acutely toxic conditions, allows adequate zones of passage, and is sized appropriately to ensure that there will be no adverse impacts to biologically sensitive or critical habitats. The Discharger evaluated the probability of migratory and resident fish being exposed to acute or chronic toxicity in the vicinity of the discharge and found that fish did not congregate and hold within the discharge plume for continuous periods of time sufficient to result in exposure durations that would cause acute or chronic toxicity, based on plume water quality.

(5-9) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance – The 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 the discharge meet CCR, Title 22, division 4, chapter 3 (Title 22) (or equivalent) tertiary filtration, which will ensure continued compliance with these mixing zone requirements. With these requirements, the acute 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.

[3] Model Verification Results for FLOWMOD Simulations of SRCSD Effluent Discharge to the Sacramento River at Freeport, November 2007 Field Study, Flow Science

(10) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The acute 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.

(11) *Shall not be allowed at or near any drinking water intake* – The acute mixing zone is not near a drinking water intake. The nearest downstream drinking water intake is the Barker Slough Pumping Plant, which is approximately 40 miles downstream of the discharge.

Although the acute aquatic life mixing zone complies with the SIP and the Basin Plan, due to concerns with aquatic toxicity in the Sacramento-San Joaquin Delta, the Central Valley Water Board has denied the allowance of an acute aquatic life mixing zone in this Order. Section 1.4.2 of the SIP states, in part, "…*The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis*." In this case, the Sacramento-San Joaquin Delta is impaired for unknown toxicity and has experienced a significant pelagic organism decline. Therefore, the Central Valley Water Board finds that the allowance of an acute aquatic life mixing zone is not acceptable for this discharge.

v. **Evaluation of Available Dilution for Chronic Aquatic Life Criteria.** The chronic aquatic life mixing zone is sized to protect the water body as a whole and is generally larger than the acute mixing zone. A mixing zone for chronic aquatic life criteria has been allowed in this Order for development of the WQBEL's for cyanide.

The chronic aquatic life mixing zone is 300 feet wide and extends 60 feet downstream of the diffuser. The chronic mixing zone meets the requirements of the SIP as follows:

(1) Shall not compromise the integrity of the entire waterbody – The TSD states that, "If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats."[4] The Sacramento River is approximately 600 feet wide at the surface. The acute mixing zone is approximately 60 feet long by 300 feet wide, located along the bottom half of the river. The Sacramento

[4] TSD, pg. 33

River is a very large waterbody. For the pollutants for which a mixing zone was requested, the acute mixing zone would not compromise the integrity of the entire waterbody.

(2) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The SIP requires that the acute mixing zone be appropriately sized to prevent lethality to organisms passing through the mixing zone. U.S. EPA recommends that float times through a mixing zone less than 15 minutes ensures that there will not be lethality to passing organisms. The acute mixing zone proposed by the Discharger extends 60 feet downstream from the outfall. Based on a minimum river velocity of 0.35 feet per second, the minimum float time is 2.8 minutes.[5] Furthermore, this Order includes an acute toxicity effluent limitation that requires compliance to be determined based on acute bioassays using 100 percent effluent. Compliance with these requirements ensures that acutely toxic conditions to aquatic life passing through the mixing zone do not occur.

(3) *Shall not restrict the passage of aquatic life* – The Discharger developed a dynamic model to evaluate the near-field effects of the discharge. The dynamic model was used to evaluate the zone of passage around the mixing zone where water quality objectives are met. The dynamic model indicates there is a zone of passage for aquatic life, which was verified through dye testing. The size of the zone of passage varies on either side of the river depending on the river geometry.[6] The surface of the Sacramento River is approximately 600 feet across and the bottom of the river is approximately 500 feet across. Based on the model, a zone of passage approximately 75 to 100 feet wide occurs along the west bank and 175 to 200 feet wide occurs along the east bank downstream of the discharge. Because the diffuser is located at the bottom of the river, the mixing zone will typically occupy only a portion of the bottom half of the river at the edge of the 60-foot mixing zone.

(4) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or state endangered species laws – The acute mixing zone will not cause acutely toxic conditions, allows adequate zones of passage, and is sized appropriately to

[5] Memorandum from Larry Walker Associates to the Discharger, *Mixing Zones and Prevention of Acutely Toxic Conditions*, dated 13 July 2009.

[6] Model Verification Results for FLOWMOD Simulations of SRCSD Effluent Discharge to the Sacramento River at Freeport, November 2007 Field Study, Flow Science

ensure that there will be no adverse impacts to biologically sensitive or critical habitats. The Discharger evaluated the probability of migratory and resident fish being exposed to acute or chronic toxicity in the vicinity of the discharge and found that fish did not congregate and hold within the discharge plume for continuous periods of time sufficient to result in exposure durations that would cause acute or chronic toxicity, based on plume water quality.

(5-9) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance – The 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 the discharge meet CCR, Title 22, division 4, chapter 3 (Title 22) (or equivalent) tertiary filtration, which will ensure continued compliance with these mixing zone requirements. With these requirements, the acute 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.

(10) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The acute 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.

(11) *Shall not be allowed at or near any drinking water intake* – The acute mixing zone is not near a drinking water intake. The nearest downstream drinking water intake is the Barker Slough Pumping Plant, which is approximately 40 miles downstream of the discharge.

The chronic aquatic life 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.

iv. **Evaluation of Available Dilution for Human Health Criteria.** The Discharger's dynamic model is useful in determining the mixing and dilution near the discharge (i.e., near-field) and the model domain extends 700 feet downstream. Human health-based criteria from carcinogenic effects are based on long-term exposures, such as safe levels for lifetime exposure (e.g., consumption of 1 liter per day for 70 years) and the mixing zones typically extend beyond the near-field mixing estimated by the Discharger's dynamic model. Since the human health carcinogen mixing zone extends beyond the domain of the dynamic model, the Discharger conducted a study titled "Sacramento River Harmonic Mean Mixing Zone Report" (June 2010) to establish the human health carcinogen mixing zone and dilution. The results of the study remain valid. The June 2010 study identified the point downstream of the discharge where complete mixing occurs. Based on the results of the June 2010 study, the discharge is completely mixed approximately 3 miles downstream. The Discharger has requested the human health mixing zone extend to this point.

In determining the available receiving water dilution for compliance with human health carcinogen criteria, the SIP, section 1.4.2.1 requires that the harmonic mean of the receiving water flow be compared against the arithmetic mean of the effluent flow of the observed discharge period. Based on Sacramento River flow data at Freeport from 1 October 1969 to 20 April 2024, the critical receiving water flow is 15,000 cfs and the critical effluent flow is 183 cfs. Therefore, a dilution ratio of 82:1 is available for compliance with human health carcinogen criteria. This Order allows a dilution credit for human health carcinogen criteria of 82:1 and the mixing zone extends 3 miles downstream of the discharge. A mixing zone for human health carcinogen criteria has been allowed in this Order for development of the WQBEL's for chlorodibromomethane, and dichlorobromomethane.

The SIP requires a mixing zone must be as small as practicable and comply with eleven (11) mixing zone prohibitions under section 1.4.2.2.A. Based on Central Valley Water Board staff evaluation, the mixing zone meets the eleven prohibitions of the SIP as follows:

(1) 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."* The mixing zone is not applicable to aquatic life criteria. The mixing zone does not compromise the integrity of the entire water body.

(2) Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone – The mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

(3) 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.

(4) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws – The mixing zone is not applicable to aquatic life criteria. The mixing zone will not impact biologically sensitive or critical habitats.

(5-9) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance – The allowance of the mixing 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. This Order requires the discharge to meet Title 22 (or equivalent) tertiary filtration, which will ensure continued compliance with these mixing zone requirements. Therefore, the allowance of the 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.

(10) Shall not dominate the receiving water body or overlap a mixing zone from different outfalls – The 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.

(11) Shall not be allowed at or near any drinking water intake – The mixing zone is not near a drinking water intake. The nearest downstream drinking water intake is the Barker Slough Pumping Plant, which is approximately 40 miles downstream of the discharge.

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

v. **Evaluation of Available Dilution for Human Health Nitrate plus Nitrite Primary MCL.** The human health nitrate plus nitrite mixing zone is sized to protect the water body as a whole. A mixing zone for human health nitrate plus nitrite Primary MCL has been allowed in this Order for development of the WQBEL's for nitrate plus nitrite.

The human health nitrate plus nitrite mixing zone is 400 feet wide and extends 30 feet downstream of the diffuser. The mixing zone meets the requirements of the SIP as follows:

(1) Shall not compromise the integrity of the entire waterbody – The TSD states that, "*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats*." The Sacramento River is a very large waterbody and the human health nitrate plus nitrite mixing zone is not applicable to aquatic life criteria; therefore, the mixing zone does not compromise the integrity of the entire waterbody.

(2) Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone – The human health nitrate plus nitrite mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

(3) Shall not restrict the passage of aquatic life – The human health nitrate plus nitrite mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.

(4) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws – The acute and chronic mixing zones will not cause acutely toxic conditions, allow an adequate zone of passage, and are sized appropriately to ensure that there will be no adverse impacts to biologically sensitive or critical habitats.

(5-9) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance – The mixing zone only allows an increase in the concentration-based effluent limits for nitrate plus nitrite, total (as N). This Order establishes mass-based effluent limits for nitrate plus nitrite consistent with the Primary MCL. The allowance of a human health nitrate plus nitrite mixing zone will not result in

sufficient loading of nutrients to 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 in the vicinity of the outfall. Furthermore, due to the continuation of the mass-based loading limits from the previous Order, these impacts will not occur in the far-field downstream within the Sacramento-San Joaquin Delta or the State Water Project and Central Valley Project drinking water systems.

(10) Shall not dominate the receiving water body or overlap a mixing zone from different outfalls – The human health nitrate plus nitrite 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.

(11) Shall not be allowed at or near any drinking water intake – The mixing zone is not near a drinking water intake. The nearest downstream drinking water intake is the Barker Slough Pumping Plant, which is approximately 40 miles downstream of the discharge.

The human health nitrate plus nitrite 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.

vi. **Evaluation of Available Dilution for Chronic Whole Effluent Toxicity (WET).** The chronic WET mixing zone is sized to protect the water body as a whole. A mixing zone for chronic WET has been allowed in this Order for development of the WQBEL's for chronic WET.

The chronic WET mixing zone is 300 feet wide and extends 350 feet downstream of the diffuser. The chronic WET mixing zone meets the requirements of the SIP as follows:

(1) Shall not compromise the integrity of the entire waterbody – The TSD states that, "If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the

waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats." The Sacramento River is a very large waterbody and the human health nitrate plus nitrite mixing zone is not applicable to aquatic life criteria; therefore, the mixing zone does not compromise the integrity of the entire waterbody.

(2) Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone – The human health nitrate plus nitrite mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

(3) Shall not restrict the passage of aquatic life – The human health nitrate plus nitrite mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.

(4) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws – The acute and chronic mixing zones will not cause acutely toxic conditions, allow an adequate zone of passage, and are sized appropriately to ensure that there will be no adverse impacts to biologically sensitive or critical habitats.

(5-9) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance – The mixing zone only allows an increase in the concentration-based effluent limits for nitrate plus nitrite, total (as N). This Order establishes mass-based effluent limits for nitrate plus nitrite consistent with the Primary MCL. The allowance of a human health nitrate plus nitrite mixing zone will not result in sufficient loading of nutrients to 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 in the vicinity of the outfall. Furthermore, due to the continuation of the mass-based loading limits from the previous Order, these impacts will not occur in the far-field downstream within the Sacramento-San Joaquin Delta or the State Water Project and Central Valley Project drinking water systems.

(10) Shall not dominate the receiving water body or overlap a mixing zone from different outfalls – The human health nitrate plus nitrite 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.

(11) Shall not be allowed at or near any drinking water intake – The mixing zone is not near a drinking water intake. The nearest downstream drinking water intake is the Barker Slough Pumping Plant, which is approximately 40 miles downstream of the discharge.

The chronic WET 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.

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

When determining whether to allow dilution credits for a specific pollutant, several factors must be considered, such as, available assimilative capacity, facility performance, and compliance with state and federal antidegradation requirements. The receiving water contains assimilative capacity for cyanide, chlorodibromomethane, dichlorobromomethane, and nitrate plus nitrite, and the human health criteria, acute aquatic life criteria, and chronic aquatic life criteria mixing zones meet the mixing zone prohibitions of the SIP section 1.4.2.2.A.

The SIP also requires that "[a] mixing zone shall be as small as practicable" and states in section 1.4.2.2.B that "[t]he 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 State Anti-Degradation Policy, which incorporates the federal antidegradation policy (State Water Board Order WQ 86-17 [Fay]), requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of the State Anti-Degradation Policy states:

> "Any activity which produces or may produce a waste or increased volume or concentration of waste and which 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 mixing zones allowed in this Order are as small as practicable and will result in the Discharger implementing best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

A pollutant-by-pollutant evaluation is provided below that evaluates facility performance and percent assimilative capacity used for each pollutant.

(a) **Chlorodibromomethane and Dichlorobromomethane.** Based on the effluent quality due to implementation of ammonia removal facilities in Spring 2023, the Facility is not be able to meet end-of-pipe effluent limitations for chlorodibromomethane and dichlorobromomethane. The receiving water contains assimilative capacity for chlorodibromomethane and dichlorobromomethane and a human health mixing zone for these parameters meets the mixing zone requirements of the SIP. Section 1.4.2.2 of the SIP requires that, "a mixing zone shall be as small as practicable," and section 1.4.2.2.B requires, "the RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements."

This Order maintains the existing effluent limitations included in Order R5-2021-0019-02, which include the maximum human health dilution credit of 55:1. The allowed dilution credits result in an average monthly effluent limit (AMEL) of 34 µg/L and a maximum daily effluent limitation (MDEL) of 64 µg/L for chlorodibromomethane, and an AMEL of 47 µg/L and an MDEL of 77 µg/L for dichlorobromomethane. Based on expected Facility performance for the upgraded Facility in Spring 2023, the mixing zones for chlorodibromomethane and dichlorobromomethane are considered as small as practicable and fully comply with the SIP and Basin Plan.

(b) **Cyanide.** The receiving water contains assimilative capacity for cyanide and aquatic life mixing zones for cyanide meet the mixing zone requirements of the SIP. As discussed in

section IV.C.2.c.iv, the Central Valley Water Board has denied the allowance of an acute aquatic life mixing zone in this Order. Therefore, the WQBEL's for cyanide have been developed

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

For cyanide, the dynamic modeling approach described in section IV.C.4.f has been used to calculate the WQBEL’s for cyanide when calculating the chronic long-term average (LTA). In accordance with step 5 of section 1.4.B of the SIP, WQBEL’s are calculated using the LTAacute and LTAchronic and the more stringent WQBEL’s are applied. Considering the dynamic modeling approach for calculating the LTAchronic, and no mixing zone for acute criteria, the an AMEL of 11 µg/L and MDEL of 22 µg/L, which are maintained from Order R5-2021-0019-02. Based on Facility performance and due to concerns that effluent cyanide concentrations are increasing due to recent water conservation efforts, the mixing zone for cyanide is as small as practicable for this Facility and fully complies with the SIP and Basin Plan.

(e) **Chronic Whole Effluent Toxicity (WET).** As discussed in section IV.C.2.v, above, a mixing zone for chronic toxicity meets the requirements of the SIP. Section 1.4.2.2 of the SIP requires that, “*A mixing zone shall be as small as practicable*,” and section 1.4.2.2.B requires, “*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*.”. Order R5-2021-0019-02 included a chronic WET monitoring trigger of 8 TUc (or 100/NOEC or 12.5% effluent). Based on the Discharger’s May 2025 Mixing Zone Request and dynamic modeling results, the allowable dilution equates to a chronic WET mixing zone extending approximately 350-feet downstream. This Order includes a chronic WET IWC of 12.5% effluent.

(f) **Nitrate plus Nitrite, Total (as N).** The receiving water contains assimilative capacity for nitrate plus nitrite in the near-field for protection of the Primary MCL and the human health nitrate plus nitrite Primary MCL mixing zone meets the mixing zone requirements of the SIP. Section 1.4.2.2 of the SIP requires that, “*a mixing zone shall be as small as practicable*,” and section 1.4.2.2.B requires, “*the RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*.”

Based on expected Facility performance for the upgraded Facility, the mixing zone for nitrate plus nitrite is as small as practicable for this Facility and fully complies with the SIP and Basin Plan.

vii. **Regulatory Compliance for Dilution Credits and Mixing Zones.** The Central Valley Water Board finds the effluent limitations established in this Order for chronic WET, nitrate plus nitrite, total (as N), chlorodibromomethane, cyanide, and dichlorobromomethane comply with the Basin Plan, SIP, federal antidegradation regulations and the State Antidegradation Policy. In summary, 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 large size of the receiving water and do not overlap a mixing zone from a different outfall. Additionally, there are no known downstream drinking water intakes.

(d) The Central Valley Water Board is allowing mixing zones for chronic WET, human health nitrate plus nitrite Primary MCL, chronic aquatic life criteria, and human health carcinogen criteria, 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 zones are relatively small and acutely toxic conditions will not occur in the mixing zones. 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 (e.g., for BOD_5 and TSS) 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.

(i) The Central Valley Water Board has determined the mixing zones comply 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.

d. **Conversion Factors.** The default U.S. EPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total criteria when developing effluent limitations for CTR metals, including arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc. Furthermore, a conservative dissolved-to-total metal translator of 1 has been used when developing effluent limitations for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc. Per the Reopener Provisions of this Order, if the Discharger performs studies to determine site-specific dissolved-to-total metal translators this Order may be reopened to modify the effluent.

e. **Hardness-Dependent CTR Metals Criteria.** The CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc. This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP and the CTR.

The ambient hardness for the Sacramento river ranges from 34 mg/L to 88 mg/L based on collected ambient data from March 2023 through December 2024. Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 34 mg/L (minimum) up to 88 mg/L (maximum).

The Central Valley Water Board finds that the use of the ambient hardness values and associated acute and chronic criteria shown in Table F-7 to conduct the reasonable potential analysis (RPA) and calculate WQBELs, protect beneficial uses under all ambient receiving water conditions and comply with the SIP, CTR, and Basin Plan.

Table F-7. Summary of Criteria for CTR Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)	Acute Criteria (µg/L, total)	Chronic Criteria (µg/L, total)	Basin Plan Objective (µg/L, total)
Copper	88	12	8.4	10.4
Chromium III	88	1600	190	--
Cadmium	88(acute) 88 (chronic)	3.9	2.2	--
Lead	88	69	2.7	--
Nickel	88	420	47	--
Silver	88	3.3	--	11.8
Zinc	88	108	108	102

Table F-7 Notes:

1. **Criteria (µg/L total).** Acute and chronic criteria 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-7 represent actual observed receiving water hardness measurements.

3. Determining the Need for WQBELs

Clean Water Act section 301(b)(1)(C) requires effluent limitations necessary to meet water quality standards, and 40 C.F.R. section 122.44(d) requires NPDES permits to include conditions that are necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality. Federal regulations at 40 C.F.R 122.44(d)(1)(i) state, “Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State

water quality standard, including State narrative criteria for water quality." Additionally, 40 C.F.R. section 122(d)(1)(vii) requires effluent limits to be developed consistent with any available WLAs 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 RPAs for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. This section includes details of the RPAs 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 RPAs have been conducted based on U.S. EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge. 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 RPAs have been conducted based on U.S. EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge. Ammonia (total as nitrogen), acute toxicity, nitrate plus nitrite, pH, pathogens, and temperature are not priority pollutants. 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 these non-priority pollutant parameters based on a qualitative assessment as recommended by U.S. EPA guidance.

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 WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs 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." With regard to POTWs, U.S. EPA recommends that, "POTWs should also be characterized for the possibility of chlorine and ammonia problems.*" (TSD, p. 50)

a. **Constituents with Total Maximum Daily Load (TMDL).**
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 WLA for the discharge prepared by the State and approved by U.S. 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 WLAs are available, they must be used to translate water quality standards into NPDES permit limits." 54 Fed. Reg. 23868, 23879 (June 2, 1989).

The Sacramento River 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 Waterways and amended the Basin Plan to include diazinon and chlorpyrifos WLAs 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 3 (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 4 (Implementation) for the additive toxicity of diazinon and chlorpyrifos.

The amendment states that "The waste load allocations for all NPDES-permitted dischargers…shall not exceed the sum (S) of one (1) as defined below:

$S = Cd/WQOd + Cc/WQOc \leq 1.0$

Where:

Cd = diazinon concentration in µg/L of point source discharge

Cc = chlorpyrifos concentration in µg/L of point source discharge

WQOd = acute or chronic diazinon water quality objective in µg/L

WQOc = acute or chronic chlorpyrifos water quality objective in µg/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 42 of the Diazinon and Chlorpyrifos TMDL lists waterways subject to the TMDL and includes the Sacramento River.

(b) **WQBELs.** WQBELs for diazinon and chlorpyrifos are required per the TMDL. This Order includes effluent limits calculated based on the WLAs contained in the TMDL, as follows:

Average Monthly Effluent Limitation (AMEL)

$$S(AMEL) = Cd\ (M\text{-}avg)/0.079 + Cc\ (M\text{-}avg)/0.012 \leq 1.0$$

Where:

Cd(M-avg) = average monthly diazinon effluent concentration in µg/L

Cc (M-avg) = average monthly chlorpyrifos effluent concentration in µg/L

Average Weekly Effluent Limitation (AWEL)

$$S(AWEL) = Cd\ (W\text{-}avg)/0.14 + Cc\ (W\text{-}avg)/0.021 \leq 1.0$$

Where:

Cd(W-avg) = average weekly diazinon effluent concentration in µg/L

Cc (W-avg) = average weekly chlorpyrifos effluent concentration in µg/L

(d) **Plant Performance and Attainability.** Chlorpyrifos and diazinon were not detected in the effluent 12 sampling events conducted between March 2023 and December 2024. Furthermore, since these pesticides have been banned for public use, they are not expected to be present in the influent to the Facility. 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 89 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 of the Sacramento River 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 1.4 ng/L based on 22 samples collected between March 2023 and December 2024. The maximum observed upstream receiving water mercury concentration was 12 ng/L based on four samples collected between March 2023 and December 2024.

The MEC for methylmercury was 0.05 ng/L based on 22 samples collected between March 2023 and December 2024. The maximum observed upstream receiving water methylmercury concentration was 0.17 ng/L based on eight samples collected between March 2023 and December 2024.

(c) **WQBEL's.** The Basin Plan's Delta Mercury Control Program includes WLA's for POTW's 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 89 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.c of this Order. The final WQBEL's for methylmercury are effective 31 December 2030.

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

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

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

i. **Bis(2-ethylhexyl) phthalate**

(a) **WQO.** The CTR includes a criterion of 1.8 µg/L for bis(2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed. Order R5-2021-0019-02 included effluent limits for bis(2-ethylhexyl) phthalate based on the CTR criterion for the protection of human health.

(b) **RPA Results.** Bis(2-ethylhexyl) phthalate was not detected in the effluent based on 22 samples collected between March 2023 and December 2024. Bis(2-ethylhexyl) phthalate was not detected in the upstream receiving water based on four samples collected between 2023 and December 2024. Therefore, bis(2-ethylhexyl) phthalate in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health. Removal of the effluent limitations for bis(2-ethylhexyl) phthalate is in accordance with the federal anti-backsliding regulations (see section IV.D.3 of this Fact Sheet).

ii. **Copper**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the effluent and receiving water. As described in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for copper in the effluent are 12.4 µg/L and 8.4 µg/L, respectively, as total. As dissolved concentrations, the applicable acute and

chronic criteria for copper in the receiving water are 12 µg/L and 8.0 µg/L, respectively.

The Basin Plan includes a site-specific objective for the Sacramento-San Joaquin Delta of 10 µg/L (dissolved) as a maximum concentration. Using the default U.S. EPA translator, the Basin Plan objective for copper is 10.4 µg/L (total).

Footnote 4, page 3 of the Introduction of the SIP states, “If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies.” The Basin Plan objective cannot be directly compared to the CTR criteria to determine the most stringent objective because they have different averaging periods and the CTR criteria vary with hardness. In this situation, the RPA has been conducted considering both the CTR criteria and the Basin Plan site-specific objective.

Order R5-2021-0019-02 included effluent limitations for copper based on the CTR criteria for the protection of freshwater aquatic life..

(b) **RPA Results.** The MEC for total copper was 5 µg/L (as total) based on 66 samples collected from March 2023 through December 2024. The maximum observed upstream receiving water copper concentration was 5.6 µg/L (as total) based on five samples collected from March 2023 through December 2024

February 2020; however, based on historical upstream receiving water samples collected by the Discharger since 2005, the maximum observed upstream receiving water dissolved copper concentration was 5.10 µg/L. Therefore, copper in the discharge has no reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. Removal of the effluent limitations for copper is in accordance with the federal anti-backsliding regulations (see section IV.D.3 of this Fact Sheet)

ii. **Settable Solids**

(a) **WQO.** For inland surface waters, the Basin Plan states that “water shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”.

(b) **RPA Results.** Settleable solids were not detected in the effluent based on 670 samples collected from March 2023 to December 2024. As of May 2023, the BNR and tertiary treatment facilities

are fully operational. Therefore, the discharge of domestic wastewater has no reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids.

iv. **Salinity**

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

Table F-8 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 700 April – August EC 1,000 September – March or TDS N/A	EC 900, 1,600, 2,200 or TDS 500, 1,000, 1,500	N/A	EC 700 April – August EC 1,000 September – March or TDS N/A	EC 772 or TDS 456	EC 950 or TDS 560
Sulfate (mg/L)	N/A	250, 500, 600	N/A	N/A	80	100

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
Chloride (mg/L)	N/A	250, 500, 600	860 1-hour / 230 4-day	N/A	90	98

Table F-11 Notes:

1. **Agricultural Water Quality Objectives.** Applicable agricultural water quality objectives vary. Procedures for establishing the applicable numeric limitation to implement the narrative chemical constituent objective can be found in the Policy for Application of Water Quality Objectives, section 4.2.2.1.9 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.
2. **Secondary MCLs.** Secondary MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
3. **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
4. **Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.
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 12 effluent sample collected from March 2023 to December 2024, the maximum observed effluent chloride concentration was 98 mg/L. These levels do not exceed the Secondary MCL or NAWQC. Background concentrations in the Sacramento River ranged from 2.7 mg/L to 7.5 mg/L based on four samples collected by the Discharger from March 2023 to December 2024.

(2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's monitoring reports shows an

average effluent EC of 752 µmhos/cm, with a range from 590 µmhos/cm to 950 µmhos/cm. These levels do not exceed the site-specific objective of 1,300 µmhos/cm . The background receiving water EC averaged 138 µmhos/cm. The average TDS effluent concentration was 449 mg/L with concentrations ranging from 340 mg/L to 560 mg/L. These levels do not exceed the Secondary MCL. The background receiving water TDS ranged from 52 mg/L to 100 mg/L, with an average of 73 mg/L.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 52 mg/L to 100 mg/L, with an average of 80 mg/L. These levels do not exceed the Secondary MCL. The background receiving water ranged from 3.3 mg/L to 9.1 mg/L, with an average of 5.5 mg/L.

(c) **WQBELs.**.

As discussed above, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. 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 Discharger submitted a Notice of Intent for the Salinity Control Program indicating its intent to meet the Alternative Salinity Permitting Approach. This Order requires implementation of a Salinity Evaluation and Minimization Plan, participation in the Salinity P&O Study, and includes a performance-based trigger for EC of 1,300 µmhos/cm for surface water, which is consistent with the Alternative Salinity Permitting Approach.

(d) **Plant Performance and Attainability.** The Central Valley Water Board concludes that the Facility would regularly be under the performance-based trigger.

b. **Constituents with No Data or Insufficient Data.** Reasonable potential cannot be determined for the following constituents because effluent data are limited or ambient background concentrations are not available. The Discharger is required to continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.

i. **Indeno(1,2,3,-cd)pyrene**

(a) **WQO**. The CTR includes a criterion of 0.0044 µg/L for indeno(1,2,3-cd)pyrene for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** The MEC for indeno(1,2,3-cd)pyrene was 0.064 µg/L, based on 15 samples collected from Mach 2023 through December 2024, all other results were not detected. Indeno(1,2,3-cd)pyrene was not detected in the upstream receiving water or the influent during the same time period. Only two effluent detections have occurred in 66 effluent samples since 2017.

Indeno(1,2,3-cd)pyrene is a polycyclic aromatic hydrocarbon (PAH) associated with combustion processes, and low-level contamination during sample collection (e.g., vehicle exhaust, generators, wildfire smoke) is possible.

Section 1.2 of the SIP states, “The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy.” Effluent data collected after March 2023 reliably represent the newly commissioned EchoWater Facility. Additional data EchoWater Facility effluent data collection is necessary to corroborate the June 8, 2023 detected value since facility start-up. Additionally, Commercial laboratory methods cannot quantify indeno(1,2,3-cd)pyrene at concentrations near the CTR WQO (0.0044 µg/L). Because detection limits exceed the applicable objective, the dataset cannot adequately characterize true effluent or upstream concentrations. Although no field or method blanks showed detectable indeno(1,2,3-cd)pyrene, incidental contamination remains possible in an industrial setting with diesel and gasoline-powered equipment. At concentrations near current

detection limits, even small contamination sources could affect results.

Section 1.3, step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of effluent limitations, monitoring for indeno(1,2,3-cd)pyrene in the effluent will be required monthly for one year, beginning 1 January 2027, and quarterly until 31 December 2029, as part of the effluent and receiving water characterization described in section IX.C of the MRP, Attachment E. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an instream excursion above a water quality standard for ammonia, BOD5, chlorine residual, chlorodibromomethane, copper, cyanide, dichlorobromomethane, nitrate plus nitrite, pH, settleable solids, temperature, total coliform organisms, and TSS. WQBELs 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. **Ammonia**

(a) **WQO.** The 2013 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (2013 Criteria), recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. The 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including toxicity data on sensitive freshwater unionid mussels, non-pulmonary snails, and other freshwater organisms.

The Central Valley Clean Water Association (CVCWA) organized a coordinated effort for POTWs within the Central Valley Region, the Freshwater Mussel Collaborative Study for Wastewater Treatment Plants, to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria could be implemented in the Central Valley

Region. Through this effort a Criteria Recalculation Report was developed in January 2020 using toxicity studies for the freshwater mussel species present in Central Valley Region waters.

The Criteria Recalculation Report implemented U.S. EPA's Recalculation Procedure utilizing toxicity bioassays conducted on resident mussel species to replace the toxicity data for the eastern mussel species in the national dataset to develop site-specific ammonia criteria for waters within the Central Valley Region, including all surface waters in the Sacramento River, San Joaquin River, and Tulare Lake Basin Plans.

U.S. EPA Office of Science and Technology reviewed and approved the Criteria Recalculation Report with a more conservative approach for utilizing the acute-to-chronic ratio procedure for developing the site-specific chronic criterion. The Central Valley Water Board finds that the site-specific ammonia criteria provided in the January 2020 Criteria Recalculation Report implements the Basin Plan's narrative toxicity objective to protect aquatic life beneficial uses of the receiving water.

Site-specific Criteria for the Sacramento River. The recalculated site-specific criteria developed in the Criteria Recalculation Report for the acute and chronic criteria are presented based on equations that vary according to pH and temperature for situations where freshwater mussels are present and where they are absent. In this case, for the Sacramento River freshwater mussels have been assumed to be present. In addition, the recalculated criteria include equations that provide enhanced protection for important salmonid species in the genus Oncorhynchus, that can be implemented for receiving waters where salmonid species are present. Because the Sacramento River has a beneficial use of cold freshwater habitat and the presence of salmonids in the Sacramento River is well-documented, the criteria equations for waters where salmonids are present were used.

The acute (1-hour average) criterion or CMC was calculated using paired effluent pH and temperature data, collected during the period from March 2023 through December 2024. The temperature of the receiving water varies seasonally. Therefore, seasonal water quality criteria were calculated for the winter season (1 November through 31 March) and the summer season (1 April through 31 October). For the winter season, the most stringent CMC of 13.3 mg/L (ammonia as N) calculated using the paired effluent pH and temperature data from 1

November through 31 March has been implemented in this Order. For the summer season, the most stringent CMC of 12.7 mg/L (ammonia as N) calculated using the paired effluent pH and temperature data from 1 April through 31 October has been implemented in this Order.

The chronic (30-day average) criterion or CCC was calculated using paired effluent pH and temperature data, collected during the period from March 2023 through December 2024. For the winter season, the most stringent 30-day rolling average CCC of 2.4 mg/L (ammonia as N) has been implemented in this Order. For the summer season, the most stringent 30-day rolling average CCC of 1.98 mg/L (ammonia as N) has been implemented in this Order.

The chronic (4-day average) concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 2.44 mg/L (ammonia as N) for the winter season, the 4-day average concentration that should not be exceeded is 6.09 mg/L (ammonia as N). Based on the 30-day CCC of 1.98 mg/L (ammonia as N) for the summer season, the 4-day average concentration that should not be exceeded is 4.95 mg/L (ammonia as N).

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan narrative toxicity objective. The Discharger currently uses a biological nutrient removal treatment system to remove ammonia from the waste stream. Inadequate or incomplete treatment may result in the discharge of ammonia to the receiving stream, which creates the basis for the discharge to have a reasonable potential to cause or contribute to an instream excursion above the site-specific acute and chronic criteria for ammonia provided by the January 2020 Criteria Recalculation Report. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBELs are required.

(c) **WQBELs.** The Central Valley Water Board calculates WQBEL's in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4 day averaging period for calculating the LTA. However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTA's corresponding to the acute

and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the AWEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. However, the Central Valley Water Board finds that retaining Order2021-0019-02 effluent limitations for ammonia is appropriate given the Facilities upgrades in 2023. This Order contains final AMEL's and AWEL's for ammonia of 2.4 mg/L and 3.0 mg/L, respectively, applicable from 1 November through 31 March, and 2.1 mg/L and 2.5 mg/L, respectively, from 1 April through 31 October, based on the NAWQC.

(d) **Plant Performance and Attainability.** The BNR and tertiary treatment facilities became fully operational in 2023. From March 2023 through December 2024, 97 percent of the effluent samples showed no detection and no exceedances of the effluent limitations. The Central Valley Water Board concludes that immediate compliance with total ammonia nitrogen effluent limitations is feasible.

ii. **Chlorine Residual**

(a) **WQO.** U.S. EPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective.

(b) **RPA Results.** The concentrations of chlorine used to disinfect wastewater are high enough to harm aquatic life and violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists, and effluent limits are required.

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. Chlorine 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 its 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*." With regard to POTW's, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

The Discharger uses chlorine (sodium hypochlorite) for disinfection, which is extremely toxic to aquatic organisms. Although the Discharger uses sodium bisulfite to dechlorinate the effluent prior to discharge to the Sacramento River, the existing chlorine use and the potential for chlorine to be discharged provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) **WQBEL's.** U.S. EPA's TSD contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L,

respectively, based on U.S. EPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) **Plant Performance and Attainability.** The Discharger uses sodium bisulfite to dechlorinate the effluent prior to discharge to the Sacramento River. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Chlorodibromomethane**

(a) **WQO.** The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed. Order R5-2021-0019-02 included effluent limitations for chlorodibromomethane based on the CTR human health criterion.

(b) **RPA Results.** The MEC for chlorodibromomethane was 6.3 µg/L based on 23 samples collected between March 2023 and December 2024. Chlorodibromomethane was not detected in the upstream receiving water based on three samples collected between March 2023 and December 2024. Although the effluent concentrations of chlorodibromomethane did not exceed the CTR criterion, based on performance by other similar facilities, effluent concentrations of chlorodibromomethane are expected to increase upon completion of upgrades to provide ammonia and nitrate removal. Therefore, chlorodibromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBEL's.** The receiving water contains assimilative capacity for chlorodibromomethane; therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit of 82:1 is allowed in the development of the WQBEL's for chlorodibromomethane. However, this order retains the WQBEL's from Order 2021-0019-02 given the proximity of the newly calculated WQBEL's and due to the recent Facility upgrades in 2023. This Order contains an AMEL of 34 µg/L and MDEL of 64 µg/L for chlorodibromomethane.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 6.3 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes,

therefore, that immediate compliance with these effluent limitations is feasible.

iv. **Cyanide**

(a) **WQO.** The CTR includes maximum 1-hour average and 4-day average criteria of 22 µg/L and 5.2 µg/L, respectively, for total cyanide for the protection of freshwater aquatic life.

The Basin Plan includes a site-specific objective for the Sacramento-San Joaquin Delta of 10 µg/L as a maximum concentration. Footnote 4, page 3 of the Introduction of the SIP states, "*If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies*." The Basin Plan objective cannot be directly compared to the CTR criteria to determine the most stringent objective because they have different averaging periods. In this situation, the RPA has been conducted considering both the CTR criteria and the Basin Plan site-specific objective.

Order R5-2021-0019-02 included effluent limitations for cyanide based on the CTR criteria for the protection of freshwater aquatic life.

(b) **RPA Results.** The MEC for cyanide was 8.7 µg/L based on 32 samples collected from March 2023 through December 2024. Cyanide was not detected in the upstream receiving water based on three samples collected between March 2023 through December 2024. Therefore, cyanide in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

(c) **WQBEL's.** The receiving water contains assimilative capacity for cyanide and a chronic aquatic life criteria mixing zone has been allowed, as discussed further in section IV.C.2.c of this Fact Sheet. For cyanide, the dynamic modeling approach described in section IV.C.4.f has been used to calculate the WQBEL's. Considering the allowed chronic aquatic life mixing zone and no mixing zone for acute criteria, this Order retains the WQBEL's from Oder 2021-0019-02 with a final AMEL and MDEL for cyanide of 11 µg/L and 22 µg/L, respectively, based on the CTR criteria for the protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 8.7 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes,

therefore, that immediate compliance with these effluent limitations is feasible.

vi. **Dichlorobromomethane**

(a) **WQO.** The CTR includes a criterion of 0.56 µg/L for dichlorobromomethane for the protection of human health for waters from which both water and organisms are consumed. Order R5-2021-0019-02 included effluent limitations for dichlorobromomethane based on the CTR human health criterion.

(b) **RPA Results.** The MEC for dichlorobromomethane was 25 µg/L based on 23 samples collected between March 2023 through December 2024. Dichlorobromomethane was not detected in the upstream receiving water based on three samples collected between March 2023 through December 2024. Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBEL's.** The receiving water contains assimilative capacity for dichlorobromomethane; therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit of 82:1 is allowed in the development of the WQBEL's for dichlorobromomethane. However, this order retains the WQBEL's from Order 2021-0019-02 given the proximity of the newly calculated WQBEL's and due to the recent Facility upgrades in 2023. This Order contains an AMEL of 47 µg/L and MDEL of 77 µg/L for dichlorobromomethane.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 25 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Nitrate and Nitrite**

(a) **WQO.** The State Water Board, Division of Drinking Water (DDW) has adopted Primary MCL's for the protection of human health for nitrite and nitrate that are equal to 1.0 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

U.S. EPA has developed a Primary MCL and an MCL goal of 1.0 mg/L for nitrite (measured as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

Order R5-2021-0019-02 included effluent limitations for nitrate plus nitrite, as a single parameter, based on the Primary MCL.

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to fish and exceeds the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia). Reasonable potential for nitrate and nitrite therefore exists and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires 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. Nitrate and nitrite are not priority pollutants. 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*." With regard to POTW'S, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

(c) **WQBEL's.** The receiving water contains assimilative capacity for nitrate plus nitrite in the near-field; therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a mixing zone/dilution credit is allowed in the development of the WQBEL's for nitrate plus nitrite. Based on the allowable dilution credit, this Order retains the WQBEL's from Order 2021-0019-02 with an AMEL and AWEL for nitrate plus nitrite, total (as N) of 16.1 mg/L and 22 mg/L, respectively, which are based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use.

(d) **Plant Performance and Attainability.** The BNR facility was fully implemented in 2023. Analysis of the effluent data shows that the MEC of 12 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vii. **Pathogens**

(a) **WQO.** DDW has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds the stringent disinfection criteria are appropriate since the undiluted effluent may be used

for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life, and constitute a threatened pollution and nuisance under CWC section 13050 if discharged untreated to the receiving water. The beneficial uses of Sacramento River include MUN, water contact recreation, and agricultural irrigation supply. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBELs are required.

(c) **WQBELs.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms, applicable between May and October, of a most probable number (MPN) of 2.2 per 100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum. Between November and April, the effluent limitations for total coliform organisms are 2.2 MPN/100 mL as a monthly median; 23 MPN/100 mL as a weekly median; and 240 MPN/100 mL, as an instantaneous maximum.

Per the Title 22 Engineering Report, the tertiary treatment process is capable of reliably treating wastewater to a turbidity level of 1.5 nephelometric turbidity units (NTU) as a 24-hour average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher filter effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria and ensure effective performance of the filters year-round, this Order includes operational specifications for turbidity per the Title 22 Engineering Report of 1.5 NTU as a 24-hour average; 2.5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 5 NTU as an instantaneous maximum, to be met prior to disinfection of effluent from the tertiary filters.

This Order contains effluent limitations for BOD5, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBEL's for BOD5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires final AMEL's and AWEL's for BOD5 and TSS of 10 mg/L and 15 mg/L, respectively, which are technically based on the capability of a tertiary system.

(d) **Plant Performance and Attainability.** he Facility possesses a tertiary filtration and disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ix. **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.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH, which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water.

Based on 1,395 samples collected between March 2023 and December 2024, the maximum pH reported was 7.5 and the minimum was 6.1. Although the minimum effluent pH is lower than the Basin Plan objective, based on modeling using the Discharger's dynamic model, the discharge does not exhibit

reasonable potential to cause or contribute to an exceedance of the Basin Plan objectives in the receiving water.

(c) **WQBEL's.** WQBEL's for pH are not required because there is no reasonable potential. As discussed in section IV.B, above, the technology-based effluent limitations for pH are 6.0 and 9.0, as an instantaneous minimum and maximum, respectively. Effluent limitations for pH of 6.0 as an instantaneous minimum and 8.0 as an instantaneous maximum are included in this Order. The instantaneous maximum effluent limitation is more stringent than the technology-based effluent limitation and is based on Facility performance and considering ammonia toxicity, which varies based on pH. The instantaneous minimum effluent limitation of 6.0 is based on the technology-based effluent limitation and has also been demonstrated through modeling that the limit ensures compliance with the Basin Plan's minimum objective in the receiving water.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum pH of 7.5 does not exceed the instantaneous maximum effluent limitation and the minimum pH of 6.1 is equal to the instantaneous minimum effluent limitation. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

xi. **Temperature**

(a) **WQO.** The Thermal Plan includes three temperature objectives that are applicable to "elevated temperature wastes." These Objectives are 5.A.(1)a; f.A.(a)b; and 5.A.(1)c."

(b) **RPA Results.** Treated domestic wastewater is an elevated temperature waste, which could cause or threaten to cause the receiving water temperature to exceed temperature objectives established in the Thermal Plan. Therefore, reasonable potential exists for temperature and WQBEL's are required.

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, non-conventional, 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. Temperature 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 Facility is a POTW that treats domestic wastewater, which is an elevated temperature waste. This provides the basis for the discharge to have a reasonable potential to cause or contribute to an excursion above the requirements of the Thermal Plan.

(c) **WQBEL's.** Consistent with the Thermal Plan exceptions described in section III.C.1.c of this Fact Sheet, this Order requires that the maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSWU-001 by more than 20°F from 1 May through 30 September and more than 25°F from 1 October through 30 April.

(d) **Plant Performance and Attainability.** The alternative effluent limitation was retained from Order R5-2021-0019-02 and the Discharger has demonstrated continuous compliance with this effluent limitation. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible. Moreover, past operational and monitoring data demonstrate that compliance with this effluent limitation and Discharge Prohibition F will ensure compliance with the CWA

316(a) exceptions and alternative permit limitations granted in the prior permit for Thermal Plan Objective 5.A.(1)b and compliance with Thermal Plan Objective 5.A.(1)c, despite them not being requirements of this Order for the reason stated in Section V.A.1.f

4. WQBEL Calculations

a. This Order includes WQBELs for ammonia, BOD5, chlorine residual, chlorodibromomethane, chlorpyrifos, cyanide, diazinon, dichlorobromomethane, methylmercury, nitrate plus nitrite, pH, temperature, total coliform organisms, and TSS. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.5.b through e, below. See Attachment H for the WQBEL calculations.

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

ECA = C + D(C – B) where C>B, and
ECA = C where C≤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 MCLs.** For non-priority pollutants with primary MCLs to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the AWEL is calculated using the AWEL/AMEL multiplier, where the AWEL multiplier is based on a 98th percentile occurrence probability and the AMEL multiplier is from Table 2 of the SIP.

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

d. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBELs are calculated in accordance with section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBELs are calculated using similar procedures, except that an AWEL is determined utilizing multipliers based on a 98th percentile occurrence probability.

e. **Human Health Criteria.** For priority pollutants with human health criteria, the WQBELs 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. For non-priority pollutants with human health criteria, WQBELs are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$AMEL = mult_{AMEL}[\min(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic})]$$

$$MDEL = mult_{MDEL}[\min(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}})]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

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_{chroni}

f. **Dynamic Model.** Section 1.4.D of the SIP allows the use of a dynamic model to calculate WQBEL's. Chapter 5.4.1 of the TSD (see page 101) provides guidance for deriving WQBEL's using a dynamic model. A three-step process has been used in this Order to derive WQBEL's for cyanide when calculating the chronic long-term average using the Discharger's dynamic model.

i. A point of compliance (edge of mixing zone) is selected. For acute aquatic life criteria, no mixing zone has been allowed. For chronic aquatic life criteria, the edge of the chronic mixing zone is selected.

ii. An LTA is developed for chronic criteria using the dynamic model (i.e., LTAchronic) by iteratively running the dynamic model with successively lower [or higher] LTA's until the model shows compliance with the water quality criteria at the edge of the mixing zone at the appropriate frequency of compliance and averaging period (e.g., chronic criteria are based on a 4-day exposure). The acute LTA was calculated using the steady-state model, because an acute mixing zone has not been allowed in this Order.

iii. The LTA and CV are used to derive MDEL's and AMEL's using the steady-state model procedures described in step 5 of section 1.4.B of the SIP. WQBEL's are calculated using the LTA_{acute} and $LTA_{chronic}$ and the more stringent WQBEL's are applied.

Summary of Water Quality-Based Effluent Limitations
Discharge Point 001

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

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--
Total Suspended Solids	mg/L	10	15	
Chlorodibromomethane	µg/L	34	--	64
Cyanide, Total (as CN)	µg/L	11	--	22
Dichlorobromomethane	µg/L	47	--	77
Ammonia Nitrogen, Total (as N)	mg/L (see table note 1. below)	2.1	2.6	--
Ammonia Nitrogen, Total (as N)	mg/L (see table note 2. below)	2.4	3.2	--
Chlorine, Total Residual	mg/L	--	0.011 (applied as a 4-day average)	0.019 (applied as a 1-hour average)
Chlorpyrifos	µg/L	(see table note 2. below)	(see table note 3. below)	--
Diazinon	µg/L	(see table note 2. below)	(see table note 3. below)	--

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Methylmercury	grams/year	(see table note 5. below)	--	--
Nitrate Plus Nitrite, Total (as N)	mg/L	16.1	22	--
Total Coliform Organisms	MPN/100mL	(see table note 4. below)	--	--
Temperature	°F	--	--	(see table note 6. below)

Table F-9 Notes:

1. **pH.** Compliance with the instantaneous minimum and maximum effluent limitations is determined by monitoring indicated in the Monitoring and Reporting Program, Table E-3. Effluent pH is measured continuously at 1-second intervals and tracked as a 20-minute running average. The highest and lowest 20-minute averages each day shall be reported.
2. **Diazinon and Chlorpyrifos AMEL**
   $S_{AMEL} = C_{D\ M\text{-}avg} /0.079 + C_{C\ M\text{-}avg} /0.012 \leq 1.0$
   $C_{D\ M\text{-}AVG}$ = average monthly diazinon effluent concentration (µg/L).
   $C_{C\ M\text{-}AVG}$ = average monthly chlorpyrifos effluent concentration (µg/L)
3. **Diazinon and Chlorpyrifos AWEL**
   $S_{AWEL} = C_{D\ W\text{-}avg} /0.14 + C_{C\ W\text{-}avg} /0.021 \leq 1.0$
   $C_{D\ W\text{-}AVG}$ = average weekly diazinon effluent concentration (µg/L).
   $C_{C\ W\text{-}AVG}$ = average weekly chlorpyrifos effluent concentration (µg/L).
4. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured after chlorination and prior to dechlorination:

   i. 1 **May through 31 October:**

      (a) 2.2 most probable number per 100 milliliters (MPN/100 mL), as a 7-day median;

      (b) 23 MPN/100 mL, more than once in any 30-day period;

      (c) 240 MPN/100 mL, at any time.

   ii. 1 **November through 30 April:**

(a) 2.2 MPN/100 mL, as a monthly median;

(b) 23 MPN/100 mL, as a weekly median;

(c) 240 MPN/100 mL, at any time.

5. **Mercury, Total (Discharge Point 001).** The effluent calendar year annual methylmercury load shall not exceed 89 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

6. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSWU-001 by more than 20°F from 1 May through 30 September and more than 25°F from 1 October through 30 April.

5. Whole Effluent Toxicity (WET)

The Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) contains toxicity provisions, including numeric objectives for acute and chronic aquatic toxicity, that are applicable to this discharge and are hereafter referred to as the Toxicity Provisions.

a. **Chronic Toxicity Water Quality Objective.** The chronic aquatic toxicity water quality objective is expressed as a null hypothesis and an alternative hypothesis with a regulatory management decision (RMD) of 0.75, where the following null hypothesis, Ho, shall be used

Ho: Mean response (ambient water) ≤ 0.75 • mean response (control)
And where the following alternative hypothesis, Ha, shall be used:
Ha: Mean response (ambient water) > 0.75 • mean response (control)

Attainment of the water quality objective is demonstrated by conducting chronic aquatic toxicity testing and rejecting this null hypothesis in accordance with the Test of Significant Toxicity (TST) statistical approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 (Chronic Freshwater and East Coast Methods) and Appendix B, Table B-1. When the null hypothesis is rejected, the alternative hypothesis is accepted in its place, and there is no exceedance of the chronic aquatic toxicity water quality objective. Failing to reject the null hypothesis (referred to as a “fail”) is equivalent to an exceedance of the chronic aquatic toxicity water quality objective.

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) To evaluate compliance with the Statewide Toxicity Provisions aquatic toxicity numeric objectives and Basin

Plan's narrative toxicity objective, acute and chronic whole effluent toxicity testing data has been evaluated in the development of this Order.

b. **Chronic Toxicity RPA.** The tables below are chronic WET testing (at an IWC of 12.5 percent effluent) performed by the Discharger from March 2023 through December 2024, for *Ceriodaphnia dubia.*

Table F-10 Chronic Whole Effluent Toxicity Testing Results for Ceriodaphnia Dubia – Test of Significant Toxicity at the IWC (12.5 Percent Effluent)

Date	Survival 100/NOEC (TUc)	Reproduction 100/NOEC (TUc)	Percent Effect on Reproduction at 12.5% IWC	Pass/ Fail
05/02/23	2	2	-13.5	Pass
06/06/23	2	2	-6.3	Pass
07/05/23	2	2	-1.4	Pass
08/01/23	2	2	-1.6	Pass
09/05/23	2	2	-34.2	Pass
10/03/23	2	2	2.1	Pass
11/01/23	2	2	-8.6	Pass
12/05/23	2	2	13.4	Pass
01/02/24	2	2	-7.5	Pass
02/06/24	2	2	14.6	Pass
03/24/24	2	2	-13.0	Pass
04/02/24	2	2	-35.7	Pass
05/07/24	2	2	-2.8	Pass
06/04/24	2	2	0.7	Pass
07/02/24	2	2	-14.0	Pass
08/06/24	2	2	-27.1	Pass
09/03/24	2	2	-7.1	Pass
10/08/24	2	2	-50.3	Pass
11/05/24	2	2	-17.0	Pass
12/11/24	2	2	-11.8	Pass

i. **RPA.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Chronic toxicity 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. 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 WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)." The Facility is a POTW with a permitted ADWF of greater than or equal to 5 MGD that treats domestic wastewater containing ammonia and other toxic pollutants and is required to have a pretreatment program by the terms of 40 C.F.R. § 403.8(a). Therefore, the discharge has a reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective and water quality-based effluent limits for chronic toxicity are included in this Order.

ii. **WQBELs.** The following effluent limitations have been established for chronic whole effluent toxicity:

Chronic Whole Effluent Toxicity Median Monthly Effluent Limitation (MMEL). No more than one chronic aquatic toxicity test initiated in a calendar month shall result in a "Fail" at the IWC for any endpoint.

Chronic Whole Effluent Toxicity Maximum Daily Effluent Limitation (MDEL). No chronic aquatic toxicity test shall result in a "Fail" at the Instream Waste Concentration (IWC) for the sub-lethal endpoint measured in the test and a percent effect for the survival endpoint greater than or equal to 50 percent.

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. 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 MCLs) 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 AWEL's for POTW's unless impracticable. For chlorodibromomethane, cyanide, and dichlorobromomethane, AWEL's have been replaced with MDEL's in accordance with section 1.4 of the SIP. Furthermore, for chlorine residual, pH,

and total coliform organisms, AWEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

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 the previous Order.

a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits "except in compliance with section 303(d)(4)." CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

   i. For waters where standards are not attained, CWA section 303(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDLs or WLAs will assure the attainment of such water quality standards.

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

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

   As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order 2021-0019-02 was issued indicates that bis (2-ethylhexyl) phthalate, copper, and settable solids do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

   ii. **Bis (2-ethylhexyl) Phthalate.** Effluent and receiving water monitoring data collected from March 2023 through December 2024 for bis (2-

ethylhexyl) phthalate indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

iii. **Copper.** Effluent and receiving water monitoring data collected from J March 2023 through December 2024 for copper indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

xii. **Settleable Solids.** Effluent and receiving water monitoring data collected from March 2023 through December 2024 for settleable solids indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan narrative objective for settleable solids.

4. Antidegradation Policies

This Order does not authorize lowering water quality as compared to the level of discharge authorized in the previous order, which is the baseline by which to measure whether degradation will occur. This Order does not allow for an increase in flow or mass of pollutants to the receiving water. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. Accordingly, the permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy.

This Order removes effluent limitations for bis (2-ethylhexyl) phthalate, copper, and settable solids based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The removal of WQBELs for these parameters will not result in an increase in pollutant concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the removal of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy.

a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of BPTC of the discharge. The impact on existing water quality will be insignificant.

b. **Groundwater.** The Discharger uses Solid Storage Basins (unlined), Dedicated Land Disposal (DLD) areas (lined), and Emergency Storage Basins (Concrete Lined). Percolation from the basins may result in an

increase in the concentration of constituents, usually present in domestic wastewater, in groundwater. The State Antidegradation Policy generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:

i. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
ii. The degradation will not unreasonably affect present and anticipated future beneficial uses;
iii. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and
iv. The degradation is consistent with the maximum benefit to the people of the state.

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 BOD_5, pH, and TSS. 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. For BOD_5, pH, and TSS, both technology-based effluent limitations and WQBEL's are applicable. The more stringent of these effluent limitations are implemented by this Order. 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-11 Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15	TTC

Parameter	Units	Effluent Limitations	Basis
Biochemical Oxygen Demand (5-day @ 20°C)	Percent Removal	AMEL 85	CFR
pH	Standard Units	Instantaneous Max 8.0 Instantaneous Min 6.0	BP
Total Suspended Solids	mg/L	AMEL 10 AWEL 15	TTC
Total Suspended Solids	Percent Removal	AMEL 85	CFR
Chlorodibromomethane	µg/L	AMEL 34 MDEL 64	CTR
Cyanide, Total (as CN)	µg/L	AMEL 11 MDEL 22	CTR
Dichlorobromomethane	µg/L	AMEL 47 MDEL 77	CTR
Ammonia Nitrogen, Total (as N)	mg/L (see table note 2. below)	AMEL 2.1 AWEL 2.6	NAWQC
Ammonia Nitrogen, Total (as N)	mg/L (see table note 3. below)	AMEL 2.4 AWEL 3.2	NAWQC
Chlorine, Total Residual	mg/L	AWEL 0.011 (see table note 4. below) MDEL 0.019 (see table note 5. below)	NAWQC
Chlorpyrifos	µg/L	(see table notes 6. and 7. below)	TMDL
Diazinon	µg/L	(see table notes 6. and 7. below)	TMDL
Methylmercury	grams/year	AMEL 89 (see table note 8. below)	TMDL
Nitrate Plus Nitrite, Total (as N)	mg/L	AMEL 16.1 AWEL 22	MCL
Temperature	°F	(see table note 9. below)	TP
Total Coliform Organisms	MPN/100 mL	AMEL 2.2 AWEL 23 Instantaneous Max 240 (see note 10)	Title 22
Total Coliform Organisms	MPN/100 mL	AMEL 2.2 AWEL 23 Instantaneous Max 240 (see note 11)	Title 22

Table F-11 Notes:

1. **DC** – Based on the design capacity of the Facility.
   TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
   CFR – Based on secondary treatment standards contained in 40 CFR part 133.
   BP – Based on water quality objectives contained in the Basin Plan.
   CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
   NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
   SEC MCL – Based on the Secondary Maximum Contaminant Level.
   TMDL – Based on the TMDL for salinity and boron in the lower San Joaquin River.
   MCL – Based on the Primary Maximum Contaminant Level.
   Title 22 – Based on State Water Board Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2. Effluent limitations applicable from 1 April through 31 October.

3. Effluent limitations applicable from 1 November through 31 March.

4. Applied as a 4-day average effluent limitation.

5. Applied as a 1-hour average effluent limitation.

6. 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 µg/L

   $C_{C\ M\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L

7. Average Weekly Effluent Limitation (AWEL):

   $S_{AWEL} = C_{D\ W\text{-}avg}/0.14 + C_{C\ W\text{-}avg}/0.021 \leq 1.0$

   Where:

   $C_{D\ W\text{-}avg}$ = average weekly diazinon effluent concentration in µg/L

   $C_{C\ W\text{-}avg}$ = average weekly chlorpyrifos effluent concentration in µg/L

8. The effluent calendar year annual methylmercury load shall not exceed 89 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

9. The maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSWU-001 by more than 20°F from 1 May through 30 September and more than 25°F from 1 October through 30 April.

10. Effluent limitations applicable from 1 May through 31 October.

    (a) 2.2 most probable number per 100 milliliters (MPN/100 mL), as a 7-day median;

    (b) 23 MPN/100 mL, more than once in any 30-day period;

    (c) 240 MPN/100 mL, at any time.

11. Effluent limitations applicable from 1 November through 30 April.

    (a) 2.2 most probable number per 100 milliliters (MPN/100 mL), as a 7-day median;

    (b) 23 MPN/100 mL, more than once in any 30-day period;

    (c) 240 MPN/100 mL, at any time.

E. Interim Effluent Limitations

1. Methylmercury

a. **Compliance Schedule.** 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 monthly monitoring for mercury and methylmercury

during the term of Order R5-2021-0019-02. The Discharger has developed and continues to implement a pollution prevention plan for mercury.

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.b, 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.

b. **Interim Limits.** 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 POTW's 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 99.9^{th} 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 R5-2021-0019-02, 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

1. In-Plant Recycled Water Use and Sewer Line Flushing. Disinfected secondary effluent and tertiary effluent may be reclaimed for dust control and compaction on construction projects, landscape irrigation, wash down water, vehicle washing and grounds maintenance within the Facility boundaries, and for flushing of pipelines within the sewer collection system. It may also be used for in-plant process water and fire protection.

2. **Production of Disinfected Tertiary Recycled Water for Distribution**. The EchoWater Facility's Tertiary Treatment Facilities upgrade project is complete. The production of recycled water is regulated by this Order per the Recycling Specifications in Section IV.C of the WDRs and the distribution and use of recycled water is regulated under the State Water Board Statewide Recycled Water General Order, Water Quality Order WQ 2016-0068-DDW, Notice of Applicability number WQ-2016-0068-DDW-R5023.

   The Discharger conducted a program to select tertiary treatment technologies to comply with Title 22 requirements. The objectives were to demonstrate equivalence of effluent filtration at filtration rates of 7.5 gallons per minute per square foot (gpm/sf) and equivalence of disinfection for free residual chlorine (FRC), in accordance with Title 22 Sections 60301.320 and 60301.230, respectively. The findings of the program were submitted to DDW in an Engineering Report dated June 2015.

   The Discharger's Title 22 Engineering Report was conditionally accepted by DDW per the conditional acceptance letter dated 12 October 2015, which included operational specifications to ensure treatment equivalent to Title 22 tertiary recycled water. The Discharger submitted a revised Title 22 Engineering Report in July 2018, incorporating the operational specifications set forth in the DDW conditional acceptance letter. DDW subsequently conditionally accepted the July 2018 Revised Title 22 Engineering Report by letter dated 5 October 2018.

The Recycling Specifications require any revisions to the Title 22 Engineering Report receives DDW conditional acceptance prior to implementation. Due to possible changes to the Title 22 Engineering Report, the Recycling Specifications require operation per the 2018 conditionally accepted Title 22 Engineering Report or any subsequently revised Title 22 Engineering Report that has been conditionally accepted by DDW.

Furthermore, the Discharger developed Standard Operating Procedures (SOP) that were reviewed and approved by DDW staff that specify the operational limits, critical alarms, and responses to alarms for the high loading rate filtration and free chlorine treatment processes. The Recycling Specifications require the Discharger operate the Facility in accordance with DDW-approved SOPs and the Monitoring and Reporting Program requires monthly Title 22 Recycled Water Compliance Reports are submitted with the monthly Self-Monitoring Report regarding the Facility's compliance with the Recycling Specifications.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

On 4 March 2025, the U.S. Supreme Court issued a decision in the case of the City and County of San Francisco vs. U.S. Environmental Protection Agency (2025) 145 U.S. 704, which challenged some of the limits in NPDES permits. The Court ruled that "end result" provisions (e.g. receiving water limitations) are not allowed by the federal Clean Water Act and that NPDES permits must have specific requirements to meet water quality objectives and protect beneficial uses. Based on this ruling, no receiving water limitations are included in this Order. The Clean Water Act and implementing regulations specify that effluent limitations are required when there is reasonable potential for a discharge to cause or contribute to an exceedance of any applicable water quality standard. A Reasonable Potential Analysis (RPA) is a key step taken by permit writers to determine if a discharge has the potential to violate water quality standards. An RPA includes characterization of the effluent and receiving waters and an assessment of the water quality standards to see if projected concentrations in the receiving water after mixing with the effluent have the "reasonable potential" (RP) to exceed the water quality criteria. Effluent limitations and other permit conditions are prescribed based on an evaluation of this information. RPAs and effluent limitation calculations follow established NPDES program procedures and requirements (State Water Resources Control Board, 2005 and U.S. Environmental Protection Agency, 1991). This Order also requires regular effluent and receiving water sampling to document any potential effects to the receiving water. In addition, this Order requires characterization monitoring of priority pollutants in the upstream receiving water and effluent during the permit term. All Central Valley NPDES permits contain a general re-opener provision that allows the Central Valley Water Board to amend the permit and include conditions, effluent limitations, provisions, or prohibitions. This would include scenarios where monitoring data indicate the need for new effluent limitations to ensure receiving water quality objectives are met. As an additional assurance, this Order prohibits

operational changes that would significantly impact the character of the waste discharge. The analysis below evaluates whether an NPDES permit is adequately protective of water quality when the receiving water limitations are removed; or alternatively, whether additional conditions should be considered when removing receiving water limitations.

1. **Summary of the specific considerations for the removal of receiving water limitations.** These considerations include associated effluent limitations, best management practices (BMPs) and/or water quality monitoring requirements.

   a. **Bacteria.** On 7 August 2018 the State Water Board adopted Resolution No. 2018-0038 establishing Bacteria Provisions, which are specifically titled *"Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Bacteria Provisions and a Water Quality Standards Variance Policy*" and "*Amendment to the Water Quality Control Plan for Ocean Waters of California—Bacteria Provisions and a Water Quality Standards Variance Policy.*" The Bacteria Water Quality Objectives established in the Bacteria Provisions supersede any numeric water quality objective for bacteria for the REC-1 beneficial use contained in a water quality control plan before the effective date of the Bacteria Provision. However, the Statewide Bacteria Provisions provide that where a permit, waste discharge requirement (WDR), or waiver of WDR includes an effluent limitation or discharge requirement that is derived from a water quality objective or other guidance to control bacteria (for any beneficial use) that is more stringent than the Bacteria Water Quality Objective, the Bacteria Water Quality Objective would not be implemented in the permit, WDR, or waiver of WDR. Since this Order includes effluent limitations and discharge requirements equivalent to the DDW Title 22 disinfected tertiary reclamation criteria that are more stringent than the Statewide Bacteria Objectives, the Statewide Bacteria Objectives have not been implemented in this Order. The Facility is a POTW that treats its water to tertiary standards and has strict total coliform limitations that meet Title 22 disinfection or equivalent standards. This Order contains total coliform effluent limitations based on the Title 22 disinfection or equivalent reclamation criteria, which are more stringent than the Statewide Bacteria Objectives described below.

   b. **Biostimulatory Substances and Dissolved Oxygen.** The Basin Plan contains a biostimulatory narrative water quality objective (WQO) and dissolved oxygen numeric water quality objectives that have been incorporated into previous permits as receiving water limitations. Biostimulatory substances and low dissolved oxygen can cause eutrophication and excessive algal growth in the receiving water along with other water quality issues related to taste, odor, color and toxicity. Discharges with high Biochemical Oxygen Demand (BOD) and/or Chemical Oxygen Demand (COD) may contribute to dissolved oxygen problems downstream. There is no RP for dissolved oxygen, but the permit requires frequent monitoring of dissolved oxygen in the receiving water as well as visual

monitoring of the receiving water for fungi, slimes, or objectionable growths. This Order includes effluent limitations for BOD_5 and percent removal of BOD_5 and TSS along with regular monitoring of Dissolved Organic Carbon (DOC) in the receiving water.

c. **Chemicals, Pesticides, and Radioactive.** The Basin Plan has narrative and numeric water quality objectives for chemicals, pesticides, and radionuclides that are typically used as receiving water limitations in NPDES permits. As with other water quality constituents, NPDES regulations require effluent limitations where existing data indicate reasonable potential to cause or contribute to an exceedance in the receiving water. Attachments G and H provide details regarding the specific chemical constituents with reasonable potential and associated effluent limitations. These effluent limitations ensure the protection of beneficial uses in the receiving water. There is no RP based on existing data for any radioactive constituents or pesticides on the characterization monitoring list. There is RP for total selenium in the effluent. This Order includes effluent limitations and effluent monitoring for total selenium.

d. **Color, Taste, and Odors.** The Basin plan has a narrative water quality objective for color as well as one for taste and odors. These have been incorporated into previous permits as receiving water limitations. Color, taste, and odors are rarely concerns for tertiary treated wastewater discharges in the Central Valley, and no effluent limitations are included in this permit. However, frequent visual monitoring of the receiving water for discoloration and other potential nuisance conditions is required.

e. **pH.** The Basin Plan has narrative water quality objectives for pH that have been used as receiving water limitations in previous permits. A pH that is too high or too low can influence the solubility of metals and nutrients in the receiving water and impact the overall health of aquatic life. The discharge does not have RP for pH based on existing data. However, the permit does include pH effluent limitations and requires frequent monitoring of pH in the receiving water.

f. **Temperature.** There is no RP for temperature based on existing data. The 14:1 river-to-effluent flow ratio discharge prohibition combined with the 20°F (1 May through 30 September) and 25°F (1 October through 30 April) effluent-to-river temperature differential requirements permitted as WQBELs in this Order nearly always controls operations to divert to the Emergency Storage Basins which not only prevent exceedances of these permitted requirements but also prevent excursions above all other applicable Thermal Plan Objectives or their CWA 316(a) exceptions and alternative temperature limitations. This is demonstrated by the fact that the Discharger has not had any receiving water limitation exceedances during the current permit term, using the approved method of compliance. Such receiving water temperature conditions are expected to continue under this Order without receiving water

temperature limitations being included in this Order for the reason stated in Section V.A.1.f.

g. **Toxicity.** The Basin Plan contains a narrative water quality objective for toxicity that has been incorporated into previous permits as a receiving water limitation. However, with the adoption of the Statewide Toxicity Provisions (State Water Resources Control Board, 2021) in 2023, numeric aquatic toxicity water quality objectives were established along with required effluent limitations and/or targets for non-stormwater NPDES permits to ensure the protection of aquatic life beneficial uses in receiving waters. This Order includes chronic whole effluent toxicity effluent limitations and requires frequent monitoring of chronic whole effluent toxicity. This Order also has effluent limitations for Ammonia Nitrogen, Total (as N). Elevated levels of ammonia are known to be toxic to aquatic organisms, so effluent limitations ensure that the aquatic life beneficial use is protected in the receiving water body.

h. **Turbidity.** The Basin Plan includes numeric turbidity water quality objectives that are based on existing turbidity in the receiving waters. These have been incorporated into previous permits as receiving water limitations. The discharge does not have reasonable potential or effluent limitations for turbidity; however the permit requires frequent monitoring of turbidity in the receiving waters. The Facility is a POTW that treats their water to tertiary standards. The permit includes filtration system operating specifications with strict turbidity requirements to ensure disinfection systems are effective. These limitations are low enough to ensure protection of beneficial uses in the receiving water.

i. **Floating Material, Oil and Grease, Suspended Sediments, Suspended Material, and Settleable Substances.** The previous permit contained receiving water limitations relative to narrative water quality objectives in the Basin Plan for Floating Material, Oil and Grease, Suspended Sediments, Suspended Material and Settleable Substances. These constituents can affect water quality by reducing water clarity and light penetration which can ultimately lead to increased water temperatures, decreased dissolved oxygen levels, and eutrophication. Contamination from these substances can impact both aquatic and human health. This Order requires frequent visual monitoring in the receiving waters for floating material, visible films, sheens or coating, suspended matter, and bottom deposits. This Order also includes numeric effluent limitations for Total Suspended Solids.

2. **Review of Other Relevant Factors.** In addition to the considerations listed in Section V.A.1 above, Central Valley Water Board staff also considered the other relevant factors below in the review of receiving water limitations.

   a. **Synergistic effects.** *Is there a known concern that the discharge will combine with the receiving water and produce adverse synergistic effects?*

For example, surface water discharges may be fully compliant with dissolved oxygen and narrative objectives, but may combine with poor conditions in the receiving water to cause harmful algal blooms (HABs), eutrophication, dissolved oxygen sag, toxic effects, taste and odor, and other harmful conditions. Is there the concern that the discharge when combined with the receiving water would have color concerns (e.g., mine discharge, floc due to pH change, etc.)? There are no known concerns for adverse synergistic effects in the receiving water.

b. **Limitations enforced within the receiving water.** *Are there specific chemicals or pesticides that have Basin Plan objectives that are not enforced through effluent limitations? For example, certain organochlorine pesticides effluent limitations are based on numeric water quality objectives consistent with applicable regulations. However, more stringent Basin Plan objectives require the receiving water to be "non-detect" for these materials. In these circumstances, removing the receiving water limitation would result in reduced protections that are required under federal and state regulations.* The discharge does not demonstrate exceedances of the Basin Plan's receiving water quality objectives for this category of chemicals and/or pesticides.

c. **Other site-specific information.** *Are there any special studies that have been conducted in the receiving water body/watershed or impairments that relate to existing receiving water limitations?* This Order considers the Clean Water Act 303(d) List of Impaired Water Bodies when they are developed. The receiving water has no Total Maximum Daily Load (TMDL) requirements. The Central Valley Water Board's Pyrethroid Control Program, adopted in 2017, requires larger POTWs (> 1 million gallons a day of discharge) to monitor for pyrethroids to determine if they have RP. The Discharger conducted pyrethroid monitoring from March through October 2024 and submitted the results to the Central Valey Water Board. Staff reviewed the results and determined that they satisfy the pyrethroid monitoring requirements. Salinity constituents are also a concern in Central Valley water bodies. The permit requires continued implementation of a Salinity Evaluation and Minimization Plan (SEMP) to identify salinity sources and reduce salinity in discharges, consistent with the requirements of the Salt Control Program.

d. **Data Characterization.** *Have the effluent and receiving water been fully characterized?* This Order requires characterization monitoring in the effluent and receiving water every permit term. A full scan of priority pollutant and other constituents of concern is required.

e. **Compliance History.** *Has the facility had any compliance issues meeting receiving water limitations during the most recent permit term (e.g., received a Notice of Violation for exceeding a receiving water limitation)? Overall, does the facility have any ongoing compliance issues (e.g., frequent operational upsets).* The Facility does not have ongoing compliance issues.

3. **Review of Receiving Water Limitations.** Based on Central Valley Water Board staff review of the considerations presented above, existing permit provisions are adequate to ensure the Facility discharge consistently meets federal and state regulations for the protection of beneficial uses in the receiving water. The effluent limitations and receiving water monitoring in this Order along with the permit prohibitions and reopener provisions provide a multi-pronged approach to ensuring water quality standards are met. As such, receiving water limitations from the previous permit can be removed without the inclusion of additional conditions. This Order requires quarterly priority pollutant characterization monitoring of the effluent and upstream receiving water and implementation of the Salinity Evaluation and Minimization Plan (including a summary of its effectiveness) Table F-13 below provides a summary of the considerations in removing the receiving water limitations.

Table F-12. Receiving Water (RW) Limitations Review

Parameter	Objective	Effluent Limitations and/or Monitoring
Bacteria	Numeric	No reasonable potential (RP), and receiving water limitation is not needed due to tertiary treatment standards. Total coliform effluent limitations are included.
Biostimulatory Substances	Narrative	No RP based on effluent data, but Biochemical Oxygen Demand (BOD), BOD percent removal effluent limitations are included. Dissolved Organic Carbon monitoring (quarterly) is required in RW.
Chemical Constituents	Narrative	Electrical conductivity effluent monitoring trigger
Color	Narrative	No RP due to tertiary treatment standards. Visual monitoring (monthly) for discoloration is required in RW.
Dissolved Oxygen	Numeric	No RP, tertiary treatment results in minimal DO impacts.
Floating Material	Narrative	Monitoring (Quarterly) is required in RW.
Oil and Grease	Narrative	No RP due to tertiary treatment standards. Visual monitoring (monthly) is required in RW.
pH	Numeric	No RP but pH effluent limitations are included. Monitoring (Monthly) is required in the RW.
Pesticides	Narrative/ Numeric	No RP.
Radioactivity	Narrative/ Numeric	No RP. With tertiary treatment standards, no adverse impacts to beneficial uses are expected in the RW.
Suspended Sediments	Narrative	No RP based on effluent data, but Total Suspended Solids effluent limitation is included. Visual monitoring (monthly) of suspended matter is required in the RW.
Settleable Substances	Narrative	No RP based on effluent data, but Total Suspended Solids effluent limitation is included. Visual monitoring (monthly) for bottom deposits is required in the RW.

Parameter	Objective	Effluent Limitations and/or Monitoring
Suspended Material	Narrative	No RP based on effluent data, but Total Suspended Solids effluent limitation is included. Visual monitoring (monthly) of suspended matter is required in the RW.
Taste and Odors	Narrative	No RP due to tertiary treatment standards. Monitoring (monthly) of potential nuisance conditions is required in the RW.
Temperature	Numeric	No RP. Monitoring (Monthly) for temperature is required in the RW.
Toxicity	Narrative	Ammonia Nitrogen, Total (as N) effluent limitations. Chronic Whole Effluent Toxicity effluent limitations.
Turbidity	Numeric	No effluent limitation due to Filtration System Operating Specifications. Monitoring (Monthly) for turbidity is required in the RW.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

b. **Pollution Prevention.** The Discharger was previously required to develop pollution prevention plans based on Water Code section 13263.3(d)(3). This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements based on a review of the pollution prevention plans.

c. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) web page: (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

d. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total when developing effluent limitations. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

e. **Whole Effluent Toxicity.** This Order may be reopened for modification to revise the aquatic toxicity provisions if the Supreme Court determines that the test of significant toxicity cannot be used in NPDES permits and the State Water Board suspends or revises the aquatic toxicity water quality standards. See Fact Sheet Section III.C.1.c for more information.

If after review of new data and information, it is determined that the discharge has reasonable potential to cause or contribute to an instream exceedance of the Statewide Toxicity Provisions' numeric chronic aquatic toxicity objective and Basin Plan's narrative toxicity objective this Order may be reopened and effluent limitations added for acute and/or chronic toxicity.

2. Special Studies and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation (TRE).** Pursuant to the Toxicity Provisions, the Discharger is required to initiate a TRE when any combination of two or more trigger exceedances occur within a single toxicity calendar month or within two successive toxicity calendar months.

In addition, if other information indicates toxicity (e.g., results of additional monitoring, fish kills, intermittent recurring toxicity), the Central Valley Water Board may require a TRE. A TRE may also be required when there is no effluent available to complete a routine monitoring test or compliance test. MRP Section V.F. provides additional details regarding the TRE.

3. Best Management Practices and Pollution Prevention

b. **Salinity Evaluation and Minimization Plan (SEMP).** The Basin Plan includes a Salt Control Program for discharges to groundwater and surface water. The Salt Control Program is a phased approach to address salinity in the Central Valley Region. During Phase I the focus will be on conducting a Prioritization and Optimization (P&O) Study to provide information for subsequent phases of the Salt Control Program. During Phase I, the Salt Control Program includes two compliance pathways for dischargers to choose; a Conservative Salinity Permitting Approach and an Alternative Salinity Permitting Approach.

The Discharger submitted a notice to intent for the Salt Control Program on 23 June 2021 indicating its intent to meet the Alternative Salinity Permitting Approach. Under the Alternative Permitting Approach, the Basin Plan requires dischargers implement salinity minimization measures to maintain existing salinity levels and participate in the P&O Study. The Discharger's NOI demonstrated adequate participation in the P&O and this Order requires continued participation to meeting the requirements of the Alternative Salinity Permitting Approach. This Order also requires continued implementation of the Discharger's SEMP and includes a performance-based salinity trigger of 1,300 µmhos/cm to ensure salinity levels do not increase. In accordance with the Basin Plan, the salinity trigger was developed based on existing facility performance and considers possible temporary increases that may occur due to water conservation and/or drought.

4. Construction, Operation, and Maintenance Specifications

a. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. Section VI.C.6.a requires the wastewater is oxidized, filtered, and adequately disinfected pursuant to Title 22, or equivalent, seasonally from 1 May through 31 October. The Discharger submitted an Engineering Report dated July 2018 prepared pursuant to California Code of Regulations Title 22, section 60323, which was conditionally accepted by the State Water Board Division of Drinking Water (DDW) per the conditional acceptance letter dated 5 October 2018. The conditionally accepted Title 22 Engineering Report allows use of free chlorine disinfection and high filter loading rates that are not consistent with Title 22. to ensure the filtration system is operating properly to provide

adequate disinfection of the wastewater, the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed the following:

i. 1.5 NTU as 24-hour average;

ii. 2.5 NTU more than 5 percent of the time within a 24-hour period; and

iii. 5 NTU, at any time.

b. **Emergency Storage Basin Operating Requirements.** The operation and maintenance specifications for the ESB's are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from Order R5-2021-0019-02. In addition, reporting requirements related to use of the ESB's are required to monitor their use and the potential impact on groundwater.

5. Special Provisions for POTWs

a. **Pretreatment Requirements**

i. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.

ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or U.S. EPA may take enforcement actions against the Discharger as authorized by the CWA.

b. **Resource Recovery from Anaerobically Digestible Material (ADM).** Some POTW's choose to accept organic material such as food waste, fats, oils, and grease into their anaerobic digesters for co-digestion to increase production of methane and other biogases for energy production and to prevent such materials from being discharged into the collection system, which could cause sanitary sewer overflows. The California Department of Resources Recycling and Recovery has proposed an exemption from requiring Process Facility/Transfer Station permits where this activity is regulated under WDR's or NPDES permits. The proposed exemption is restricted to ADM that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The proposed exemption requires that a POTW develop

standard operating procedures for the proper handling, processing, tracking, and management of the ADM before it is received by the POTW.

Standard operating procedures are required for POTW's that accept hauled food waste, fats, oil, and grease for injection into anaerobic digesters. The development and implementation of standard operating procedures for management of these materials is intended to allow the California Department of Resources Recycling and Recovery to exempt this activity from separate and redundant permitting programs. If the POTW does not accept food waste, fats, oil, or grease for resource recovery purposes, it is not required to develop and implement standard operating procedures.

The Discharger currently accepts hauled-in ADM for direct injection into its anaerobic digester for co-digestion. This Order requires the Discharger to implement standard operating procedures. The requirements of the standard operating procedures are discussed in section VI.C.5.b of the Order.

6. Other Special Provisions

a. **Seasonal Title 22, or Equivalent, Disinfection Requirements.** From 1 May to 31 October, when discharging to surface water, wastewater shall be oxidized, filtered, and adequately disinfected pursuant to Title 22, or equivalent, requirements consistent with the conditionally accepted Title 22 Engineering Report, in accordance with the compliance schedule in section VI.C.7.a.

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 State Water Board's Resolution 2008-0025 "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits" (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten 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 one 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 BOD_5, methylmercury, total coliform organisms, TSS, and chronic WET.

a. **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 authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The burden, including costs, of these monitoring and reporting requirements bears a reasonable relationship to the need for the reports and the benefits to be obtained therefrom. The Discharger, as owner and operator of the Facility, is required to comply with these requirements, which are necessary to determine compliance with this Order. The following provides additional rationale for the monitoring and reporting requirements contained in the MRP for this facility.

Water Code section 13176, subdivision (a), states: "The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code." The DDW accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Wat. Code sections 13370, subd. (c), 13372, 13377.). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code section 13372, subd. (a).) Lab accreditation is not required for field tests such as tests for color, odor, turbidity, pH, temperature, dissolved oxygen, electrical conductivity, and disinfectant residual. The holding time requirements are 15 minutes for chlorine, total residual, dissolved oxygen,

and temperature, (40 C.F.R. section 136.3(e), Table II). The Discharger maintains an ELAP accredited laboratory that can conduct analysis within the required hold times.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies and sample types have been retained from Order R5-2019-0019-02, except as noted in Table F-16, below.

Table F-12 Revised Influent Monitoring

Parameter	Units	Previous Sample Frequency	Revised Sample Frequency
Electrical Conductivity @ 25˚C	µmhos/cm	1/Week	Discontinue
Total Dissolved Solids	mg/L	1/Month	Discontinue

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 have been retained from Order R5-2019-0019-02, except as noted in Table F-17, below:

Table F-13 Revised Effluent Monitoring

Parameter	Units	Previous Sample Frequency	Revised Sample Frequency
Bis (2-Ethylhexyl) Phthalate	mg/L	1/Month	Discontinue
Copper, Total Recoverable	mg/L	1/Month	Discontinue
Copper, Dissolved	mg/L	1/Month	Discontinue
Ammonia Nitrogen, Total (as N) - 1 April through 31 October	lbs/day	1/Day	Discontinue
Ammonia Nitrogen, Total (as N) - 1 November through 31 March	lbs/day	1/Day	Discontinue
Nitrate Plus Nitrite (as N)	lbs/day	1/Week	Discontinue
Settleable Solids	ml/L	1/Day	Discontinue
Oil and Grease	mg/L	1/Month	Discontinue
Acute Toxicity	--	1/Week	Discontinue

C. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream. Receiving surface water monitoring frequencies and sample types have been retained from Order R5-2019-0019-02.

2. Groundwater

a. Not applicable – Groundwater Monitoring is administered under separate WDRs (Order R5-2015-0133).

D. Whole Effluent Toxicity Testing Requirements

Aquatic toxicity testing is necessary to evaluate the aggregate toxic effect of a mixture of toxicants in the effluent on the receiving water. Acute toxicity testing is conducted over a short time period and measures mortality, while chronic toxicity testing is conducted over a short or longer period and may measure mortality, reproduction, and growth. This Order requires aquatic toxicity testing to be performed following methods identified in the 40 C.F.R. part 136, or other U.S. EPA-approved methods, or included in the following U.S. EPA method *manuals: Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013). Quarterly chronic whole effluent toxicity testing is required to demonstrate compliance with the toxicity receiving water limitation and chronic toxicity effluent limitations/targets.

The discharge is subject to determination of "*Pass*" or "*Fail*" from a chronic toxicity test using the TST statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 (Chronic Freshwater and East Coast Methods) and Appendix B, Table B-1.

The null hypothesis (Ho) for the TST statistical approach is:

> Mean discharge IWC response ≤ RMD x Mean control response, where the chronic RMD = 0.75.

A test result that rejects this null hypothesis is reported as "*Pass*". A test result that does not reject this null hypothesis is reported as "Fail."

The relative "*Percent Effect*" at the discharge IWC is defined and reported as:

> Percent Effect = ((Mean control response – Mean discharge IWC response) / Mean control response) x 100.

This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations, i.e., a control and IWC. The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the

IWC differs from the control, the test result is "*Fail*"). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

1. **Sensitive Species Screening.** Under the Toxicity Provisions, the Discharger shall perform subsequent sensitivity screening to re-evaluate the most sensitive species if the effluent used in the species sensitivity screening is no longer representative of the effluent or if a species sensitivity screening has not been performed in the last fifteen years. Subsequent species sensitivity screening may also be required prior to every order issuance, renewal or reopening, if reopening to address aquatic toxicity.

   Pursuant to Section V.E of the MRP, the Discharger is required to perform species sensitivity screening and submit the results with the Report of Waste Discharge. Species sensitivity screening for chronic toxicity shall include, at a minimum, chronic WET testing four consecutive calendar quarters using the water flea (*Ceriodaphnia dubia*), fathead minnow (*Pimephales promelas*), and green algae (*Pseudokirchneriella subcapitata*). For subsequent sensitivity screening, if the first two species sensitivity screening events result in no change in the most sensitive species, the Discharger may cease the subsequent species sensitivity screening and the most sensitive species will remain unchanged. At 100% undiluted effluent the only species that exceeded 1 TUc across in the four quarters of testing was Ceriodaphnia dubia (>1 TUc for reproduction).

2. **Toxicity Reduction Evaluation (TRE).** The Monitoring and Reporting Program of this Order requires chronic WET testing to demonstrate compliance with the numeric chronic toxicity effluent limitation or Basin Plan's narrative toxicity objective. The Discharger is required to initiate a TRE when there is any combination of two or more chronic toxicity trigger exceedances within a single calendar month or within two successive calendar months has occurred. In addition, if other information indicates toxicity (e.g., results of additional monitoring, fish kills, intermittent recurring toxicity), the Central Valley Water Board may require a TRE. A TRE may also be required when there is no effluent available to complete a routine monitoring test, or compliance test.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the pretreatment requirements contained in 40 C.F.R. part 403 and implemented in section VI.C.5.a. of this Order. Biosolids monitoring is required per U.S. EPA guidance to evaluate the effectiveness of the pretreatment program. Biosolids monitoring for compliance with 40 C.F.R. part 503 regulations is not included in this Order since it is a program administered by U.S. EPA's part 503 Biosolids Program (https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws)

2. **Effluent and Receiving Water Characterization Monitoring**

   This Order requires characterization monitoring of the effluent and receiving water to compare parameters with their respective water quality objectives. The effluent and receiving water characterization monitoring will aid in determining any changes to current or future effluent and/or monitoring

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

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

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDRs that will serve as an NPDES permit for the EchoWater Resource Recovery Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDRs 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 WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Additionally, consistent with Water Code section 189.7, the Central Valley Water Board conducted outreach to potentially affected disadvantaged and/or tribal communities concerning the tentative WDRs. Notification was provided through **<notification process>**. 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/))

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDRs 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 <Date>**.

C. Public Hearing

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

Date: **3/4 June 2026**
Time: **8:30 a.m.**
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670
With remote meeting option

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDRs, 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_instr.shtml) are available on the Internet.

E. Information and Copying

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

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs 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 Victor Lopez at 916-464-4855, or Victor.Lopez@waterboards.ca.gov.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia (as N)	mg/L						--	--	--	--	Yes
Cyanide, Total (as CN)	µg/L	8.7	2.6	5.2	22	5.2	700	220,000	10	150	Yes
Copper, Total	µg/L	5	5.6	8.4	12.4	8.4	1,300	--	10.4	1,000	No
Chlorodibromomethane	µg/L	6.3	0.014	0.41	--	--	0.41	34	--	80	
Dichlorobromomethane	µg/L	25	ND	0.56	--	--	0.56	46	--	80	Yes
Nitrate Plus Nitrite (as N)	mg/L	11	0.39	10	--	--	--	--	--	10	Yes

Attachment G Table Notes:

1. All inorganic concentrations are given as a total concentration.
2. <insert additional notes as applicable>

Abbreviations used in this table:

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

ATTACHMENT H-1 – CALCULATION OF WQBELS

HUMAN HEALTH WQBELS CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Dichlorobromomethane	µg/L	0.41	0.020	0.60	55	2.01	1.55	34	64	
Dichlorobromomethane	µg/L	0.56	0.010	0.79	55	2.28	1.74	47	77	
Nitrate Nitrogen, Total (as N)	µg/L	10	0.44	0.98	--	2.50	1.36	16.1	--	22

Attachment H-1 Table Notes:

1. CV was established according to section 1.4 of the SIP.
2. Final effluent limitations in the Order have been retained from Order R5-2021-0019-02 for dichlorobromomethane, Dichlorobromomethane, and nitrate nitrogen, Total (as N)

Abbreviations used in this table:

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

ATTACHMENT H-2 – CALCULATION OF WQBELS

AQUATIC LIFE WQBELS CALCULATIONS

Parameter	Units	CMC Criteria	CCC Criteria	B	Effluent CV	CMC Dilution Factor	CCC Dilution Factor	ECA Multiplier$_{acute}$	LTA$_{acute}$	ECA Multiplier$_{chronic}$	LTA$_{chronic}$	AMEL Multiplier$_{95}$	AWEL Multiplier	MDEL Multiplier$_{99}$	AMEL	AWEL	MDEL
Ammonia Nitrogen, Total (as N) (see table note 5 below)	mg/L	15.31	2.14	0.12	0.12	--	--	0.77	11.75	0.95	2.04	1.04	1.26	--	2.1	2.6	--
Ammonia Nitrogen, Total (as N) (see table note 6 below)	µg/L	24.03	2.43	<0.093	0.19	--	--	0.66	15.94	0.92	2.25	1.06	1.43	--	2.4	3.2	--
Cyanide, Total (as CN)	µg/L	22	5.2	<0.86	0.60	--		0.32	7.10			1.55	--	3.10	11	--	22

Attachment H-2 Table Notes:

1. AMEL calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.
2. AWEL calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.
3. MDEL calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.
4. Final effluent limitations in the Order have been retained from Order R5-2021-0019-02 for ammonia and cyanide.

Abbreviations used in this table:

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)

CV = Coefficient of Variation (established in accordance with section 1.4 of the SIP)
ECA Effluent Concentration Allowance
LTA Aquatic Life Calculations – Long-Term Average
MDEL = Maximum Daily Effluent Limitation
AMEL = Average Monthly Effluent Limitation
MDEL = Maximum Daily Effluent Limitation
AWEL = Average Weekly Effluent Limitation

ATTACHMENT I – THERMAL PLAN EXCEPTIONS

I. INTRODUCTION

The Sacramento Area Sewer District (Discharger) has requested exceptions to temperature objectives contained in the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan) for the EchoWater Resource Recovery Facility (EchoWater Facility) discharge to the Sacramento River within the Sacramento-San Joaquin Delta (Delta). The Thermal Plan allows regional boards to provide exceptions in accordance with Clean Water Act (CWA) section 316(a) and federal regulations.

The Discharger has been granted exceptions to the Thermal Plan in the current and prior NPDES permits based on the Discharger's thermal effects studies and reports. These studies and associated reports demonstrated to the satisfaction of the Central Valley Water Board and the State Water Board that the Thermal Plan objectives (and effluent limitations derived directly from them) are more stringent than necessary to protect the aquatic life beneficial uses of the Sacramento River and Delta and thus alternative limitations are protective. More specifically, the federal regulatory standard to grant CWA Section 316(a) exceptions in an NPDES permit is stated in 40 CFR Section 125.73(a):

"*Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the director that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.*"

On 21 July 2016, the State Water Board adopted Resolution No. 2016-0036, in which it concurred with the Central Valley Water Board's action granting the Sacramento Regional Wastewater Treatment Plant (SRWTP)[7] an exception to the Thermal Plan and adopting alternative less stringent thermal effluent and receiving water limitation in Order R5-2016-0020. State Water Board Resolution No. 2016-0036 states that the Central Valley Water Board shall review the limitations "at the time of any renewal of SRWTP's discharge permit to determine whether they assure protection and propagation of balanced indigenous communities of aquatic life in the vicinity of the discharge as required by CWA 316(a) and 40 CFR 125.73." In accordance with the State Water Board Resolution, the Central Valley Water Board reviews the limitations for each renewal of the discharge permit.

[7] The Discharger completed major upgrades to the SRWTP in spring 2023. Thereafter, the new tertiary treatment facility is known as the EchoWater Resource Recovery Facility (EchoWater Facility).

For this NPDES permit renewal, the Discharger submitted a report in 2025 titled: "*Thermal Plan Exception Justification Report in Support of NPDES Permit Renewal*" (2025 Report). The 2025 Report updated the characterization of key conditions as of 2025, including Sacramento River flows and temperatures, EchoWater Facility effluent flows and temperatures, EchoWater Facility diffuser configuration, and other relevant conditions that occurred at the time of the thermal studies. The 2025 Report then evaluated whether key conditions inherent to the previous thermal studies changed sufficiently, or new information has become available, since the adoption and approval of the 2016 permit to determine whether the key findings and evidence from the 2016 permit remain valid. The 2025 Report found that key conditions did not change sufficiently and that the requested exceptions to the Thermal Plan and alternative effluent and receiving water temperature limitations (which were the same as those granted in 2016) still assured the protection and propagation of balanced indigenous communities of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected.

The Central Valley Water Board determines that conditions have not changed significantly since the adoption of the 2016 permit and the regulatory standard for CWA 316(a) exceptions and promulgated in 40 CFR 125.73 continues to be met. Because no changes have been made to the approved Thermal Plan exceptions in Order R5-2016-0020-01 and no conditions have been added in this Order, further State Water Board concurrence is not required. Accordingly, the applicable exceptions to the Thermal Plan and alternative, less stringent thermal limitations shall become effective on the effective date of this Order.

The exceptions shown in Table I-1 below have been granted by the Central Valley Water Board in accordance with CWA 316(a) and 40 C.F.R. Section 125.73(a). This Order does not include the alternative receiving water limitations included in Order R5-2016-0020-01 or Order R5-2021-0019, for the reasons stated in Attachment F, Section V.A.1.f. of this Order. Past operational and monitoring data have demonstrated to the Central Valley Water Board that compliance with the thermal effluent limitation and Discharge Prohibition F included in this Order will ensure compliance with the exceptions granted in the prior permits for Thermal Plan Objective 5.A.(1)b and compliance with Thermal Plan Objective 5.A.(1)c (for which no prior exception has been granted), To meet the Thermal Plan objectives without exceptions, the Discharger would need to construct chillers with an estimated construction cost in excess of $638 million and annual operating costs in excess of $22 million.[8]

[8] Memorandum submitted by the Discharger on 11 December 2015, "Project Cost and Schedule for Compliance with Thermal Plan without Seasonal Exception."

Table I-1. Thermal Plan Exceptions

Thermal Plan Requirements Section 5.A.(1)a	**NPDES Permit Requirements**
5.A.(1)a The maximum effluent temperature shall not exceed the natural receiving water temperature by more than **20**°F	**Effluent Limitation:** **Exception from 1 October through 30 April** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than: • **25**° F from 1 October through 30 April; or • **20**° F from 1 May through 30 September

Based on all evidence in the record, the Central Valley Water Board finds that the Discharger has adequately demonstrated through thermal effect studies that the effluent and receiving water limitations based on the Thermal Plan are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. The Central Valley Water Board also finds that the alternative limitations, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the Sacramento River and Delta. The findings and conclusions relating to Code of Federal Regulations, title 40, section 125.73(a) are based on studies that analyzed the entire thermal effect of the discharge.

II. PAST STUDIES AND REGULATORY FINDINGS THAT SUPPORT THERMAL REQUIREMENTS IN THIS ORDER

To grant Thermal Plan exceptions and alternative thermal permit limitations in this Order, the Central Valley Water Board relied on the recent 2025 Report discussed above in addition to the scientific and regulatory evidence produced by the Discharger beginning in 2010. This section summarizes the complete evidentiary basis upon which the Central Valley Water Board has relied for its decisions pertaining to Thermal Plan exceptions and alternative thermal limitations in this Order.

A. Thermal Effects Studies

The Discharger has conducted several temperature studies to assess the thermal impacts of the discharge on aquatic life of the lower Sacramento River, including:

- **2010 Study**: Thermal Plan Exception Justification for the Sacramento Regional Wastewater Treatment Plant, prepared by Robertson-Bryan, Inc., July 2010

- **2013 Study**: Temperature Study to Assess the Thermal Impacts of the Sacramento Regional Wastewater Treatment Plan Discharge on Aquatic Life of the Lower Sacramento River, prepared by Robertson-Bryan, Inc., March 2013

- **2015 Delta Smelt Addendum**: Temperature Study to Assess the Thermal Impacts of the Sacramento Regional Wastewater Treatment Plan Discharge on Aquatic Life of the Lower Sacramento River: Delta Smelt Addendum, prepared by Robertson-Bryan, Inc., March 2015

- **2015 Supplemental Report**: Regional San Temperature Study: Synthesis, Supplemental Analysis and Findings Report, prepared by Robertson-Bryan, Inc., December 2015

- **2019 Report**: Thermal Plan Exception Justification Report, prepared by Robertson-Bryan, Inc., December 2019

- **2025 Report**: Thermal Plan Exception Justification Report in Support of NPDES Permit Renewal, prepared by Robertson-Bryan, Inc., April 2025

The 2013 Study considered six questions developed as part of a working group that included Central Valley Water Board staff and fishery agency representatives. The rationale of the working group was that if the answers to all six questions was “no,” then the exceptions, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made. The six questions are summarized below.

- Question 1. Would special-status fishes migrating past the diffuser, or benthic macroinvertebrates or plankton drifting past the diffuser, experience thermal exposures that would exceed lethal or sub-lethal thresholds?

- Question 2. Does the discharge block or delay migration of fishes?

- Question 3. Are large numbers of predatory fishes holding at the diffuser site due to elevated water temperatures?

- Question 4. Do fishes (migratory or resident) congregate and hold within the plume area for extended periods of time, thereby resulting in sufficient exposure duration to cause acute or chronic toxicity, based on plume water quality?

- Question 5. Are predatory fishes that hold at the diffuser site consuming listed fishes?

- Question 6. Do discharges from the SRWTP increase river temperatures, upon full mixing, by magnitude and duration that would be of concern for aquatic life?

The 2013 Study concluded through a number of comprehensive scientific tests that the answer to the above questions was "no." The tests included fish tagging and tracking, acoustic monitoring, predatory fish sampling and other techniques to assess whether the thermal discharge is causing any impacts to aquatic resources (including cumulative). This conclusion supports continuation of the Thermal Plan exceptions.

Upon reviewing the 2013 Study's conclusions, USFWS requested more information to append the 2013 Study regarding a single ESA-listed species (Delta Smelt). The Discharger responded to this request with the 2015 Delta Smelt addendum. The 2015 Delta Smelt addendum assessed the potential direct and indirect effects of the thermal discharge on all delta smelt life stages such as adults, larvae, and post-spawn adults, and on delta smelt critical habitat. The study concluded that the discharge "…would not cause lethality to individual delta smelt, result in chronic, adverse sublethal effects, adversely modify delta smelt critical habitat, prevent sustainability or recovery of the delta smelt population, or eliminate access to critical habitat primary constituent elements." The 2015 Delta Smelt addendum was developed to answer specific questions regarding Delta Smelt.

B. Thermal Plan Exceptions in Order No. R5-2016-0020

The Thermal Plan allows regional boards to provide exceptions to specific water quality objectives in the Thermal Plan so long as the exceptions comply with CWA section 316(a) and 40 CFR Section 125.73(a). The Central Valley Water Board, after consideration of the Discharger's temperature studies conducted in 2010, 2013, and 2015, and coordination with the fishery agencies, granted the following exceptions to the Thermal Plan in the 2016 permit, conditional on concurrence of the State Water Board:

1. **Thermal Plan Objective 5.A.(1)a Exception:**
   The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than: 25º F from 1 October through 30 April;

   No exception to Thermal Plan Objective 5.A.(1)a was proposed from 1 May through 30 September.

2. **Thermal Plan Objective 5.A.(1)b Exception:**
   If the natural receiving water temperature is less than 65ºF, the discharge shall not create a zone, defined by water temperature of more than 2ºF above natural temperature, which exceeds 25 percent of the cross sectional area of the River at any point outside the zone of initial dilution.

   If the natural receiving water temperature was 65ºF or greater, no exception to Thermal Plan Objective 5.A.(1)b is proposed.

On 14 January 2016, Central Valley Water Board staff provided technical justification for the Thermal Plan exceptions to the State Water Board for their review. On 11 March 2016, State Water Board staff agreed there was adequate support for the exceptions.

On 21 July 2016, the State Water Board adopted Resolution No. 2016-0036, in which it approved the Central Valley Water Board's action granting the EchoWater Facility exceptions to the Thermal Plan and adopting alternative less stringent thermal effluent and receiving water limitation in Order R5-2016-0020.

C. California Sportfishing Protection Alliance (CSPA) Litigation

Following the 2010 permit renewal, CSPA filed a petition with the State Water Board. The State Water Board reviewed the permit and issued Water Quality Order WQ-2012-0013 in December 2012 that for the most part upheld the permit with minimal revisions required. The State Water Board Order did not address or require changes to thermal limitations. CSPA subsequently filed a lawsuit with the Sacramento County Superior Court (Court). One of the issues raised by CSPA was related to the allowance of Thermal Plan exceptions in the 2010 Permit.

In October 2014, the Court ruled that the 2010 Permit failed to include the proper findings for a Thermal Plan exception and ordered the Central Valley Water Board to vacate the Thermal Plan exceptions and reconsider the issue of whether Thermal Plan exceptions may be granted.

The Central Valley Water Board reconsidered the issuance of the Thermal Plan exceptions as part of the 2016 permit renewal process. On 24 June 2016, acting on CSPA's objections to the Central Valley Water Board's return to writ of mandate, the Court found that the analyses in the 2015 Supplemental Report, in addition to the 2013 Study and 2015 Delta Smelt Addendum, "support the conclusion that the effluent and receiving water limitations under the exceptions meet the criteria in 40 CFR Section 125.73(a)."

III. SUBSEQUENT PERMIT RENEWALS

In both the 2020 and 2025 ROWD, the Discharger requested that Central Valley Water Board grant the same exceptions to the Thermal Plan as adopted in the 2016 permit and the same alternative effluent and receiving water limitations. The Discharger submitted to the Central Valley Water Board the 2019 and 2025 Reports, respectively, in support of its requests. The 2019 and 2025 Reports evaluate whether key conditions inherent to the previous thermal studies changed sufficiently, or new information has become available, since the adoption of the 2016 permit to determine whether the key findings and evidence supporting the Thermal Plan exception and alternative limitations in the 2016 permit remain valid. A summary of the approach and key conclusions in the 2019 and 2025 Reports is provided below.

A. 2019 and 2025 Reports

These reports evaluated the key conditions based on current information. The key conditions considered in the 2019 and 2025 Report and updated with current information at the time include the following.

1. Facility:
    a. Diffuser configuration;
    b. Effluent flows; and
    c. Effluent temperatures.
2. Lower Sacramento River.
    a. Flows;
    b. Temperatures,
    c. Channel bathymetry near the diffuser, and
    d. Effluent plume size and thermal gradients remain unchanged
3. Aquatic and Wildlife Communities.
    a. Lower Sacramento River Aquatic and Wildlife Communities remain unchanged
4. Scientific Literature.
    a. Thermal tolerances reported for representative important species remain unchanged.

B. Key Conditions.

Most key conditions have not changed since the analysis in the 2013 Study and 2015 Delta Smelt Addendum, and the adoption of the 2016 permit.

The following conditions remain unchanged since the analysis in the 2013 Study and 2015 Delta Smelt Addendum, and the adoption of the 2016 permit:

1. The EchoWater Facility diffuser;
2. The range of effluent flows and effluent temperatures, and the highest summer effluent temperatures, discharged from the EchoWater Facility;
3. The worst-case river-to-effluent flow ratio of 14:1;
4. Lower Sacramento River flows and channel bathymetry near the diffuser;

5. Effluent plume size, and accordingly, the zones of passage along the river margins and top half of the water column; and

6. The lower Sacramento River's aquatic and wildlife communities

The scientific literature defining the thermal tolerances of the representative important species was reviewed to determine whether any new publications provide new information that would change the science regarding species-specific thermal tolerances used in making the prior demonstration. Although new scientific publications were identified and reviewed for some species in both the 2019 and 2025 Reports, the recently published thermal tolerance data was consistent with, and thus supported, the species-specific, literature derived thermal tolerances that were used for the 2013 Study and 2015 Delta Smelt Addendum. Consequently, these same thermal tolerances were used for the analyses in the 2019 and 2025 Reports.

C. Updated River and Effluent Temperature Data

Updated river and effluent temperature data sets in both reports showed higher monthly maximum river and/or effluent temperatures occurred since the demonstration in 2016. Thus, the thermal gradients that would exist within the thermal plume during some months and under some scenarios from the diffuser ports to about 1,000 feet downstream of the diffuser would change somewhat due to the higher river background and effluent temperatures, identified from updating the temperature data sets, compared to those used for the prior demonstrations. The 2019 and 2025 Reports thus analyzed the new worst-case thermal exposure scenarios for the most thermally sensitive species that could potentially be in the vicinity of the discharged: Chinook salmon, steelhead, and Delta Smelt.

D. Analyses of Worst-case Thermal Conditions

Analyses of the effects of worst-case thermal conditions in the river downstream of the diffuser on Chinook Salmon, steelhead, and Delta Smelt (in consideration of the updated period of record) did not change the scientific findings reached in prior studies and adopted in the 2016 permit. Despite the somewhat higher maximum river temperatures that occurred in some months of recent drought years, under these river temperature conditions the EchoWater Facility's thermal discharge would not result in river thermal conditions that would cause lethality or any chronic adverse sublethal effects to Chinook Salmon, steelhead, or Delta Smelt. Because these species are the most thermally intolerant of the representative important species assessed, and because the worst-case thermal conditions within the river downstream of the discharge were analyzed, it can be concluded that the recently observed river temperature conditions would not result in any lethality or chronic adverse sublethal effects to these same species under more favorable thermal conditions. Moreover, it can be further concluded that the higher river temperature conditions reviewed from the recent drought period would not result in any lethality or chronic adverse sublethal effects to any of the more thermally tolerant aquatic or

wildlife species using the lower Sacramento River/Delta during any month of the year under any discharge scenario.

It should also be noted that during the summer months when the river experiences its highest background temperatures, the EchoWater Facility does not operate to an exception to Thermal Plan objective 5A(1)(a) (i.e., an effluent-river temperature differential of 25ºF vs. 20ºF). The exception to this objective is only applicable from 1 October through 30 April. River background temperatures during the period 1 October through 30 April when the exception to objective 5A(1)(a) is applicable are typically in the 60s or lower. At such river temperatures, the tenths of a degree Fahrenheit incremental increase caused by the EchoWater Facility thermal discharge has no adverse effects on the river's aquatic life or wildlife.

E. 2019 and 2025 Report Findings:

Both the 2019 and 2025 Reports support the following findings.

1. The EchoWater Facility thermal discharge will not cause lethality or chronic, adverse sublethal effects (e.g., reduction in reproduction or growth) for any of the representative important aquatic or wildlife species passing through the thermal plume immediately downstream of the EchoWater Facility diffuser or using far-field, fully mixed areas, including ESA-listed fish species;

2. The EchoWater Facility thermal discharge will not cause blockage or significant delay of migratory or resident fishes passing the EchoWater Facility diffuser, including ESA-listed fish species;

3. The EchoWater Facility thermal discharge will not result in exclusion of aquatic life or wildlife from using large areas of the lower Sacramento River/Delta;

4. The EchoWater Facility thermal discharge will not reduce any aquatic or wildlife species abundance or aquatic community biomass, composition, diversity, structure, or function;

5. The EchoWater Facility thermal discharge will not increase abundance of nuisance species; and

6. The EchoWater Facility thermal discharge will not adversely affect one or more physical and biological features (PBFs) of designated critical habitat for any ESA-listed fish species by sufficient magnitude, frequency, and geographic extent that would result in adverse modification of designated critical habitat.

The Central Valley Water Board found for the 2021 permit renewal (based on the 2019 Report) and finds again for this renewal (based on the 2025 Report) that the conclusions from the 2016 permit are still valid and support granting the Thermal Plan exception and alternative, less stringent effluent and receiving water limitations.

III. U.S. SUPREME COURT DECISION

On 4 March 2025, the U.S. Supreme Court issued a decision in the case of the City and County of San Francisco vs. U.S. Environmental Protection Agency (2025) 145 U.S. 704, which challenged use of receiving water limitations in NPDES permits. As stated in this Order, Section V.A., the Court ruled that “end result” provisions (e.g. receiving water limitations) are not allowed by the federal CWA and that NPDES permits must have specific requirements to meet water quality objectives and protect beneficial uses.

Based on this ruling, no receiving water thermal limitations are included in this Order. Past operational and monitoring data have demonstrated (see Discharge submitted report RBI (2017) titled: Evaluation of the Sacramento Regional Wastewater Treatment Plant Method of Compliance for Receiving Water Temperature Limitations and RBI Technical Memorandum dated May 23, 2018) to the Central Valley Water Board that compliance with the thermal effluent limitation and Discharge Prohibition F, specific requirements included in this Order, will ensure compliance with the exceptions and alternative limitations granted in the prior permits for Thermal Plan Objective 5.A.(1)b and compliance with Thermal Plan Objective 5.A.(1)c (for which no prior exception has been granted).