CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0079138
ORDER R5-2020-0007-01

WASTE DISCHARGE REQUIREMENTS
FOR THE CITY OF STOCKTON
REGIONAL WASTEWATER CONTROL FACILITY
SAN JOAQUIN COUNTY

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

Table 1. Discharger Information

Discharger:	City of Stockton
Name of Facility:	Regional Wastewater Control Facility
Facility Street Address:	2500 Navy Drive
Facility City, State, Zip:	Stockton, CA 95206
Facility County:	San Joaquin County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001A	Tertiary Treated Wastewater Discharged from West-Bank Outfall (prior to fully transitioning discharge to the East-Bank Outfall)	37° 56' 15" N	121° 20' 05" W	San Joaquin River
001B	Tertiary Treated Wastewater Discharged from East-Bank Outfall	37° 56' 6" N	121° 19' 46" W	

Table 3. Administrative Information

This Order was Adopted on:	**20 February 2020**
This Order shall become effective on:	**1 April 2020**
This Order shall expire on:	**31 March 2025**
The Discharger shall file a Report of Waste Discharge (ROWD) as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a NPDES permit no later than:	**31 March 2024**
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 **20 February 2020, and amended by Order R5-2023-0039 on 10 August 2023**.

Date: 2023.08.25 11:10:05 -07'00'

PATRICK PULUPA, Executive Officer

WASTE DISCHARGE REQUIREMENTS
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TABLES

ATTACHMENTS

I. FACILITY INFORMATION

Information describing the City of Stockton, Regional Wastewater Control 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 (WDR's) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (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 locations described in Table 2 subject to the WDR's in this Order.

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

C. Background and Rationale for Requirements. The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.

D. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections V.B, VI.C.4, 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 require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports."*

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

F. Notification of Interested Persons. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

G. Consideration of Public Comment. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that Order R5-2014-0070-03 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for violations of the previous Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.

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

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

D. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 22, section 66261.1 et seq., is prohibited.

E. **Average Dry Weather Flow**. Discharges exceeding an average dry weather flow of 55 million gallons per day (MGD) are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001A and Discharge Point 001B

1. Final Effluent Limitations – Discharge Point 001A and Discharge Point 001B

The Discharger shall maintain compliance with the following effluent limitations at Discharge Points 001A and 001B. Unless otherwise specified, compliance shall be measured at Monitoring Locations EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time, 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
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), 5-day @ 20°Celcius	milligrams per liter (mg/L)	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	--
Bromoform	micrograms per liter (µg/L)	38	--	110
Chlorodibromomethane	µg/L	29	--	75
Dichlorobromomethane	µg/L	17	--	34
Ammonia Nitrogen, Total (as N) 1 April through 31 October	mg/L	1.2	3.2	--

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily
Ammonia Nitrogen, Total (as N) 1 November through 30 November	mg/L	2.3	7.5	--
Ammonia Nitrogen, Total (as N) 1 December through 31 March	mg/L	2.4	7.6	--
Ammonia Nitrogen, Total (as N) 1 April through 31 October	lbs/day	550	1,500	--
Ammonia Nitrogen, Total (as N) 1 November through 30 November	lbs/day	1,100	3,400	--
Ammonia Nitrogen, Total (as N) 1 December through 31 March	lbs/day	1,100	3,500	--
Nitrate Plus Nitrite, Total (as N) **Effective 1 June 2024**	mg/L	10	14	--

b. **pH**:

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

ii. 8.5 SU as an instantaneous maximum.

c. **Percent Removal:** The average monthly percent removal of 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) and total suspended solids (TSS) shall not be less than 85 percent.

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

i. 70%, minimum for any one bioassay; and

ii. 90%, median for any three consecutive bioassays.

e. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20° Fahrenheit (°F).

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. **Chronic Whole Effluent Toxicity (WET). Effective 1 April 2025.** The effluent chronic toxicity shall not exceed 1 chronic toxicity units (as 100/NOEC) AND a percent effect of 25 percent (%) at 100 percent (%) effluent, for any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.

h. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured immediately after disinfection:

i. 2.2 most probable number per 100 milliliter (MPN/100 mL), as a 7-day median.

ii. 23 MPN/100 mL, more than once in any 30-day period; and

iii. 240 MPN/100 mL, at any time.

i. **Diazinon and Chlorpyrifos**

i. **Average Monthly Effluent Limitation (AMEL)**

$$S_{AMEL} = \frac{C_{D\,M-AVG}}{0.079} + \frac{C_{C\,M-AVG}}{0.012} \leq 1.0$$

$C_{D\,M-AVG}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\,M-AVG}$ = average monthly chlorpyrifos effluent concentration in µg/L.

ii. **Average Weekly Effluent Limitation (AWEL)**

$$S_{AWEL} = \frac{C_{D\,W-AVG}}{0.14} + \frac{C_{C\,W-AVG}}{0.021} \leq 1.0$$

$C_{D\,W-AVG}$ = average weekly diazinon effluent concentration in µg/L.
$C_{C\,W-AVG}$ = average weekly chlorpyrifos effluent concentration in µg/L.

j. **Electrical Conductivity @ 25°C.** Effluent total coliform organisms shall not exceed the following with compliance measured immediately after disinfection:

i. The effluent calendar year annual average electrical conductivity shall not exceed 1,300 µmhos/cm.

ii. The Discharger shall minimize the discharge of electrical conductivity through the implementation of best management practices established in Special Provision VI.C.3.b of this Order.

k. **Methylmercury. Effective 31 December 2030**. The effluent calendar year annual methylmercury load shall not exceed 13 grams, in accordance with the Delta Mercury Control Program.

l. **Dissolved Oxygen.** The daily average effluent dissolved oxygen concentration shall not be less than 6.0 mg/L from 1 September through 30 November and 5.0 mg/L throughout the remainder of the year.

2. Interim Effluent Limitations

The Discharger shall maintain compliance with the following interim effluent limitations at Discharge Point 001A and Discharge Point 001B, with compliance measured at Monitoring Locations EFF-001A and EFF-001B respectively as described in the MRP, Attachment E.

a. **Chronic Whole Effluent Toxicity (WET).** Effective immediately and until 31 March 2025, the effluent chronic toxicity shall not exceed 16 TUc (as 100/NOEC) AND a percent effect of 25 percent at 6.25 percent effluent, for any endpoint as the median of up to three consecutive chronic toxicity tests within a 6-week period. This interim effluent limitation shall apply in lieu of the final effluent limitation for chronic WET (section IV.A.1.g).

b. **Mercury, total. Effective immediately and until 30 December 2030**, for a calendar year, the total annual mass discharge of total mercury shall not exceed 217 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (section IV.A.1.k).

c. **Nitrate plus Nitrite, Total (as N).** Effective immediately and until 31 May 2024, the Discharger shall maintain compliance with the interim effluent limitations specified in Table 5. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations for nitrate plus nitrite specified in section IV.A.1.a.

Table 5. Interim Effluent Limitations for Nitrate plus Nitrite

Parameter	Units	Average Monthly	Average Weekly
Nitrate Plus Nitrite, Total (as N)	mg/L	31	42

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in the San Joaquin River:

1. **Bacteria**. The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of

200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances**. Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents**. Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color**. Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen**:

    a. The dissolved oxygen concentration to be reduced below 6.0 mg/L any time from 1 September through 30 November; nor

    b. The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time from 1 December through 31 August.

6. **Floating Material**. Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease**. Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH**. The pH to be depressed below 6.5 nor raised above 8.5.

9. **Pesticides**:

    a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

    b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

    c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by U.S. EPA or the Executive Officer;

    d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR section 131.12.);

    e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;

f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) <set forth in CCR, Title 22, division 4, chapter 15; nor

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

10. **Radioactivity**:

    a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

    b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

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

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

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

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

15. **Temperature**. The discharge shall not cause the following in the San Joaquin River:

    a. The creation of 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 the river channel at any point.

    b. A surface water temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place.

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

17. **Turbidity**.

    a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;

    b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;

    c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;

    d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

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

B. Groundwater Limitations

1. Release of waste constituents from any portion of the Facility shall not cause groundwater to contain any of the following constituents greater than listed in Table 6 or greater than natural background quality, whichever is greater.

   a. Groundwater limitations for electrical conductivity and total dissolved solids specified in Table 6 are cumulative impact limits that account for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

   b. Natural background quality is known to have exceeded the limitations for electrical conductivity and total dissolved solids specified in Table 6.

Table 6. Groundwater Limitations

Parameter	Units	Limitation
Electrical Conductivity @ 25°C	µmhos/cm	2,000
Nitrate, Total (as N)	mg/L	10
Total Coliform Organisms	MPN/100 mL	2.2
Total Dissolved Solids	mg/L	450

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.

2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

   a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

   b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

      i. violation of any term or condition contained in this Order;

      ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

      iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

      iv. a material change in the character, location, or volume of discharge.

      The causes for modification include:

      i. New regulations. New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

      ii. Land application plans. When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

      iii. Change in sludge use or disposal practice. Under 40 CFR section 122.62(a)(1), a change in the Discharger's sludge use or disposal

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

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

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

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

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

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

ii. Controls any pollutant limited in the Order.

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

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

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

g. The Discharger 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. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

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

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 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.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This Order may be reopened to address changes to the Delta Mercury Control Program.

d. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following Water Code section 13263.3(d)(3) for mercury and nitrate plus nitrite. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE) or Toxicity Evaluation Study (TES), this Order may be reopened to include a revised chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE.

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 recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

g. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the

Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

h. **Ultraviolet (UV) Disinfection Operating Specifications.** The UV operating specifications in this Order are based on the UV guidelines developed by the National Water Research Institute and American Water Works Association Research Foundation titled, "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse." If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications.

i. **Facility Modifications Project.** The Discharger is in the process of a design-build process for a major Facility modifications project. At the time of permit renewal the specific design was not complete. Therefore, this Order may be reopened to include an updated facility description, flow schematic, and additional specifications and monitoring as necessary (e.g., for ultraviolet (UV) disinfection).

j. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board Approved Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. 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/)

If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation Requirements.** This Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are

designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.

i. **Numeric Toxicity Monitoring Trigger.** The numeric Toxicity Unit (TUc) monitoring trigger is 1 TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection iii, below.

ii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic whole effluent toxicity result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:

(a) **Initial Toxicity Check**. If the result is less than or equal to 1.3 TUc (as $100/EC_{25}$) AND/OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, proceed to step (b).

(b) **Evaluate 6-week Median**. The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as $100/EC_{25}$) and the percent effect is greater than 25 percent at 100 percent effluent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring. See Compliance Determination Section VII.L for procedures for calculating 6-week median.

(c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE or participate in an approved TES as described in the following subsections.

(d) **Toxicity Evaluation Study.** If the percent effect is ≤ 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or

as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

(e) **Toxicity Reduction Evaluation.** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:

(i) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

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

3. Best Management Practices and Pollution Prevention

a. **Pollution Prevention Plan for Mercury and Nitrate plus Nitrite.** The Discharger shall continue to implement pollution prevention plans for mercury and nitrate plus nitrite in accordance with Water Code section 13263.3(d)(3). The minimum requirements for the pollution prevention plans are outlined in the Fact Sheet (Attachment F, section VI.B.3.a). The Discharger shall provide annual progress reports according to the schedule in the Technical Reports Table. The progress reports shall discuss the effectiveness of the pollution prevention plans in the reduction of mercury and nitrate plus nitrite in the discharge, include a summary of monitoring results, and discuss updates to the pollution prevention plans.

b. **Salinity Best Management Practices (BMP) Plan.** The Discharger shall submit and implement a BMP plan for salinity in accordance with Chapter IV Section B.1.vii of the Bay-Delta Plan. The BMP plan shall be submitted to the Central Valley Water Board by the due date in the Technical Reports Table and shall include the following to reduce salinity to the maximum extent practicable in an effort to comply with the Southern Delta water quality objectives for electrical conductivity:

i. An industrial pretreatment program, implemented through local ordinances, that minimizes salinity inputs from all industrial sources of salinity within the POTW's collection system;

ii. Source control measures, such as reducing salinity concentrations in source water supplies;

iii. Actions to limit or ban the use of residential self-generating water softeners or imposing salt efficiency standards on such water softeners;

iv. A salinity education and outreach program; and

v. Ongoing participation in the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).

The Discharger shall provide annual progress reports according to the schedule in the Technical Reports Table. The progress reports shall discuss the effectiveness of the BMP plan in the reduction of salinity in the discharge, include a summary of monitoring results, and discuss updates to the BMP plan.

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 the turbidity of the filter effluent measured shall not exceed:

i. 2 NTU as a daily average;

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

iii. 10 NTU, at any time.

Effective immediately, the turbidity of the filter effluent shall be measured at EFF-001A when discharging at Discharge Point No. 001A and at FIL-001 when discharging at Discharge Point No. 001B.

b. **Ultraviolet (UV) Disinfection System Operating Specifications.**

When discharging from Discharge Point No. 001B, the UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:

i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm^2).

ii. **UV Transmittance**. The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at UVS-001 shall not fall below 55 percent.

iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.

iv. The lamp sleeves must be cleaned periodically as necessary to meet the UV dose requirements.

v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

c. **Treatment Pond Operating Requirements**.

i. The treatment ponds 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 in the ponds shall be precluded through such means as fences, signs, and other acceptable alternatives.

iii. Treatment 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; and

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

iv. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow) as a monthly average and never less than 1 foot at any time.

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

vi. Objectionable odors originating from the treatment ponds shall not be perceivable beyond the Facility property at an intensity that creates or threatens to create nuisance conditions.

vii. As a means of discerning compliance with Treatment Pond Operating Requirements (VI.C.4.c.vi) the dissolved oxygen content in the upper zone (1 foot) of wastewater in treatment ponds shall not be less than 1.0 mg/L. This operating requirement is not applicable upon completion of the Facility Modifications Project

viii. Wastewater contained in ponds shall not have a pH less than 6.0 or greater than 9.0. Short term and temporary fluctuations in pond pH below 6.0 and above 9.0 lasting no more than one week at a time are permitted for operational purposes.

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 C.F.R. 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 non-domestic user for non-compliance 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.

b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. Part 503.

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration

that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

ii. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 C.F.R. Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 C.F.R. Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 C.F.R. Part 503 whether or not they have been incorporated into this Order.

iii. The Discharger shall comply with section IX.A. Biosolids of the Monitoring and Reporting Program, Attachment E.

iv. The onsite sludge/biosolids treatment, processing, and storage for the Facility is described in the Fact Sheet (Attachment F, section II.A). Any proposed change in the onsite treatment, processing, or storage of sludge/biosolids shall be reported to the Executive Officer at least **90 days** in advance of the change and shall not be implemented until written approval by the Executive Officer.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent.

7. Compliance Schedules

a. **Compliance Schedules for Final Effluent Limitations for Chronic Whole Effluent Toxicity (WET).** This Order requires compliance with the final effluent limitations for chronic WET by **1 April 2025**. The Discharger shall comply with the time schedule shown in the Technical Reports Table to ensure compliance with the final effluent limitations.

b. **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 to ensure compliance with the final effluent limitations.

c. **Compliance Schedule for Final Effluent Limitation for Nitrate plus Nitrite.** This Order requires compliance with the final effluent limitations for nitrate plus nitrite by 1 June 2024. The Discharger shall comply with the time schedule shown in the Technical Reports Table to ensure compliance with the final effluent limitations.

VII. COMPLIANCE DETERMINATION

A. CBOD5 and TSS Effluent Limitations (Section IV.A.1.a and IV.A.1.c). Compliance with the final effluent limitations for CBOD5 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.b for percent removal shall be calculated using the arithmetic mean of CBOD5 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 for Methylmercury and Total Mercury (Section IV.A.1.k and IV.A.2.b). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual month shall be determined using an average of all concentration data collected that month and the corresponding total flow for that month. All effluent monitoring data collected under the MRP and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.

2. In calculating compliance, the Discharger shall count all non-detect (ND) measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the ND contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

C. Average Dry Weather Flow Effluent Limitations (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.h). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7 day median 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. If the 7 day

median of total coliform organisms exceeds an MPN of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.

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. 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, 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, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with section IV Standard Provisions (Attachment D).

F. Mass Effluent Limitations. The mass effluent limitations contained in section IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:

Mass (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor)

If the effluent flow exceeds the permitted average dry weather flow during wet weather seasons, the effluent mass limitations contained in section IV.A.1.a shall not apply. If the effluent flow is below the permitted average dry weather flow during wet weather seasons, the effluent mass limitations do apply.

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

b. A sample result is reported as ND and the effluent limitation is less than the method detection limit (MDL).

3. When determining compliance with an AMEL and more than one sample result is available in a month or with an AWEL and more than one sample result is available in a week, 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.

H. Temperature Effluent Limitation (Section IV.A.1.e). Compliance with the effluent limitation for temperature shall be ascertained using the daily average effluent temperature at Monitoring Locations EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time, and the temperature of the "upstream" receiving water measured on the same day by grab sample at either Monitoring Location RSW-002 or Monitoring Location RSW-002A, depending on the direction of San Joaquin River flow at the time of sampling.

I. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.i). 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.

J. Electrical Conductivity Calendar Year Annual Average Effluent Limitation (Section IV.A.1.j). Compliance shall be determined by calculating the sum of all daily discharges measured during a calendar year divided by the number of daily discharges measured during that year.

K. Temperature Receiving Water Limitations (Section V.A.15). Compliance with the temperature receiving water limitations will be determined based on the difference in the temperature measured at Monitoring Location RSW-002 compared to the temperature measured at Monitoring Location RSW-002A. Due to the tidal nature of the receiving water, the direction of the San Joaquin River flow at the time of sampling will dictate which monitoring location is representative of the "upstream" receiving water and which monitoring location is representative of the "downstream" receiving water.

State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on 18 May 1972 and amended this plan on 18 September 1975. This plan contains temperature objectives for surface waters, including estuaries. Requirements of this Order implement the Thermal Plan, and are described as follows.

a. The maximum temperature shall no exceed the natural receiving water temperature by more than 20°F.

b. Elevated temperature waste discharge 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.

L. Turbidity Receiving Water Limitations (Section V.A.17.a-e). Compliance with the turbidity receiving water limitations will be determined based on the difference in turbidity measured at Monitoring Locations RSW-002 and RSW-002A. Due to the tidal nature of the receiving water, the direction of the San Joaquin River flow at the time of sampling will dictate which monitoring location is representative of the

"upstream" receiving water and which monitoring location is representative of the "downstream" receiving water.

M. Chronic Whole Effluent Toxicity (WET) Effluent Limitation (Sections IV.A.1.g and IV.A.2.a). To evaluate compliance with the chronic WET effluent limitations, the median TUc result shall be the median of up to three consecutive chronic toxicity bioassays during a 6-week period. This includes a routine chronic toxicity monitoring event and two subsequent optional compliance monitoring events.

In determining compliance with the final effluent limitation in sections IV.A.1.f (effective **1 April 2025**), where the median chronic toxicity units exceed 1 TUc (as 100/NOEC), the Discharger will be deemed out of compliance with the final chronic toxicity effluent limitation if the median chronic toxicity units for any endpoint also exceed a reporting level of 1.3 TUc (as 100/EC25) AND the percent effect at 100 percent effluent exceeds 25 percent. The percent effect used to evaluate compliance with the final chronic toxicity effluent limitation shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the final chronic toxicity effluent limitation.

In determining compliance with the interim effluent limitation in section IV.A.2.a (**effective immediately, until 31 March 2025**), where the median chronic toxicity units exceed **16 TUc** (as 100/NOEC) for any endpoint, the Discharger will be deemed out of compliance with the interim chronic toxicity effluent limitation if the median percent effect at 6.25 percent effluent for the same endpoint also exceeds 25 percent. The percent effect used to evaluate compliance with the interim chronic toxicity effluent limitation shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the interim chronic toxicity effluent limitation.

N. Use of Delta Regional Monitoring Program and Other Receiving Water Data to Determine Compliance with Receiving Water Limitations. Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this Order will not be used directly to determine that the discharge is in violation of this Order. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger that is not conducted by the Delta Regional Monitoring Program and submit that monitoring data. As described in section VIII of Attachment E, such data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Order.

ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

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

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

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

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the

analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

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

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

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

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

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

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

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

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams

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

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

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

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

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

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

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

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

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical

procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

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

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

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

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

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

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

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

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

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

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

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

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

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

where:

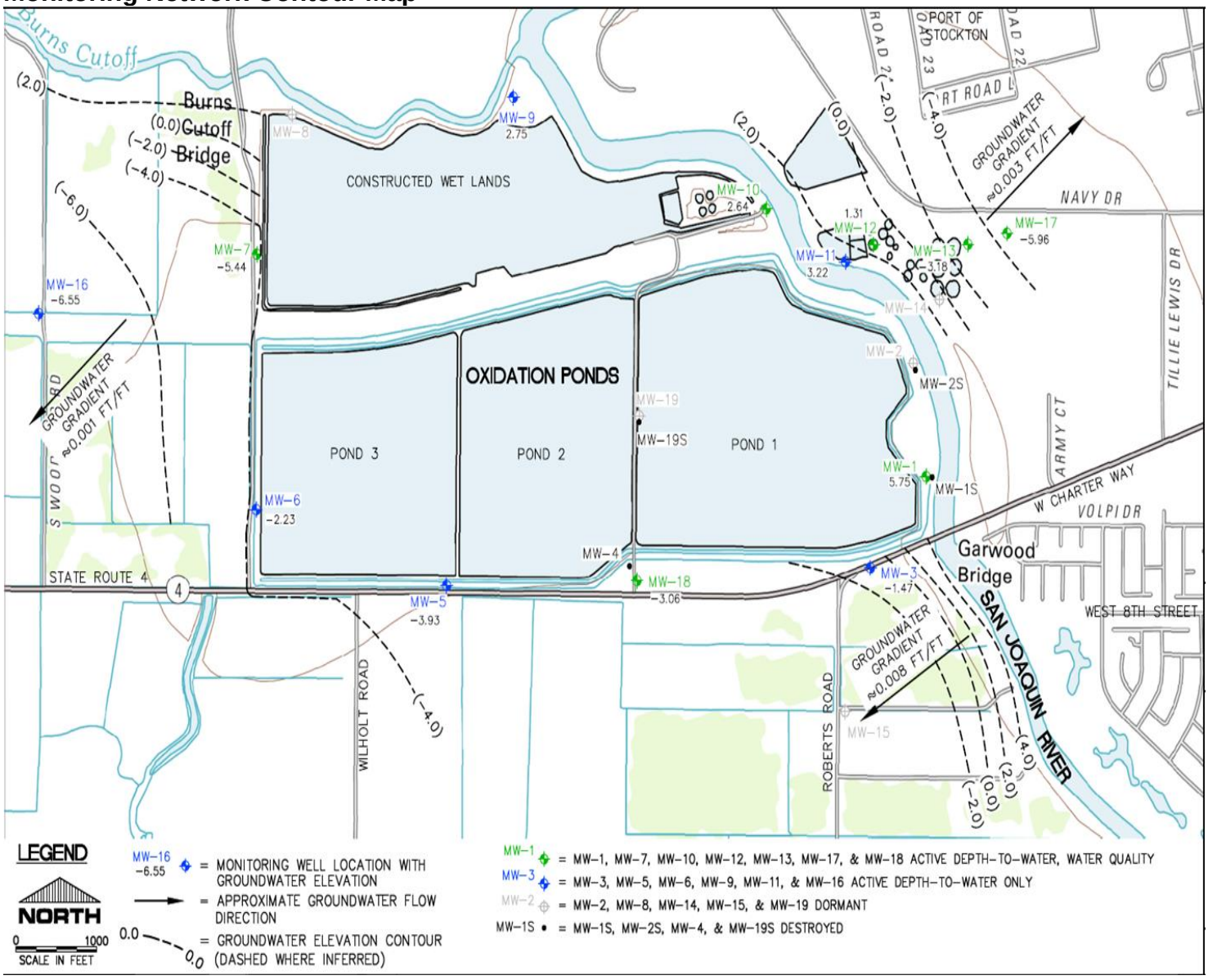
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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

ATTACHMENT B – MAP

Figure B-1. City of Stockton Regional Wastewater Control Facility Site Map

Figure B-2. City of Stockton Regional Wastewater Control Facility Groundwater Well Monitoring Network Contour Map



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Existing City of Stockton Regional Wastewater Control Facility Flow Schematic

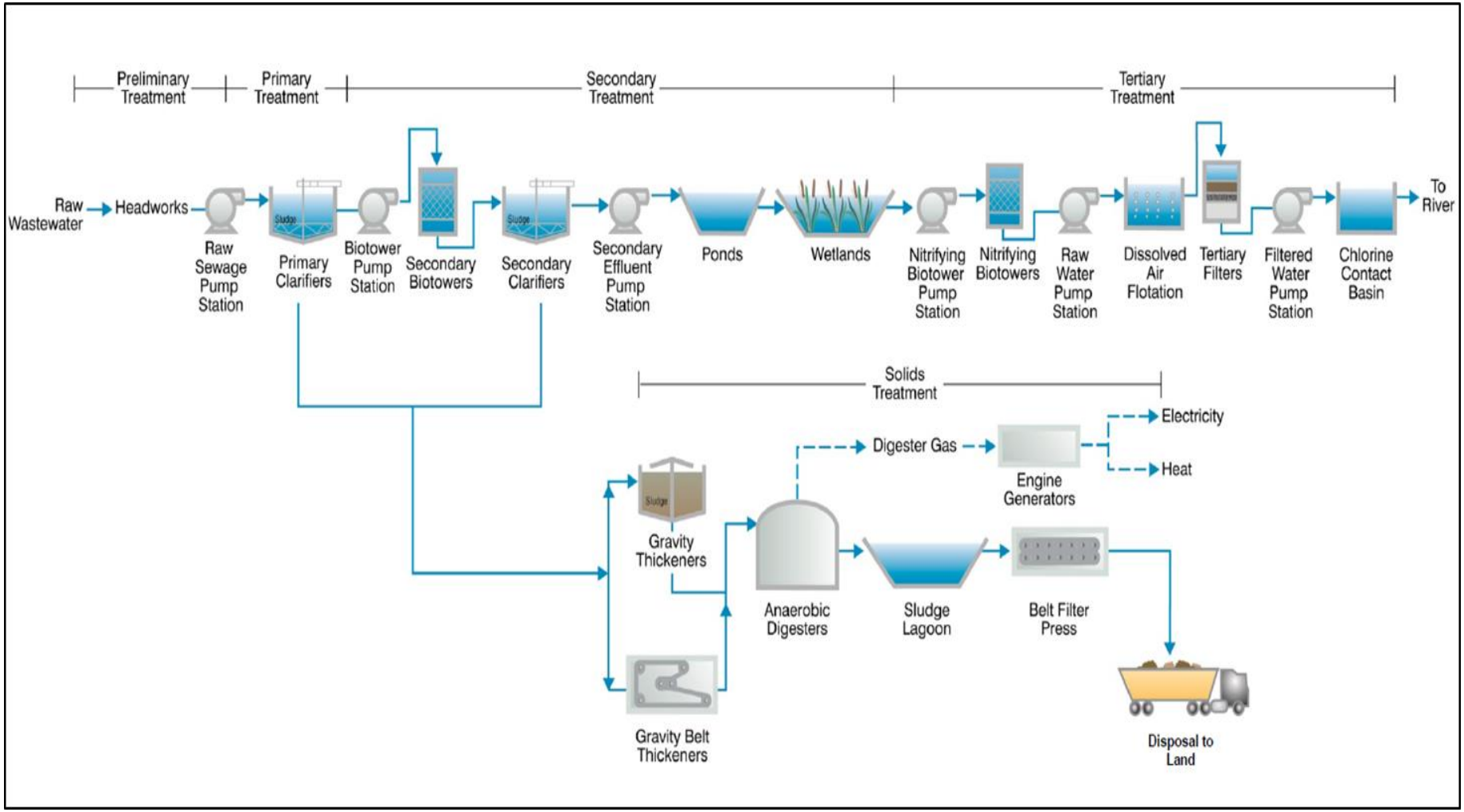
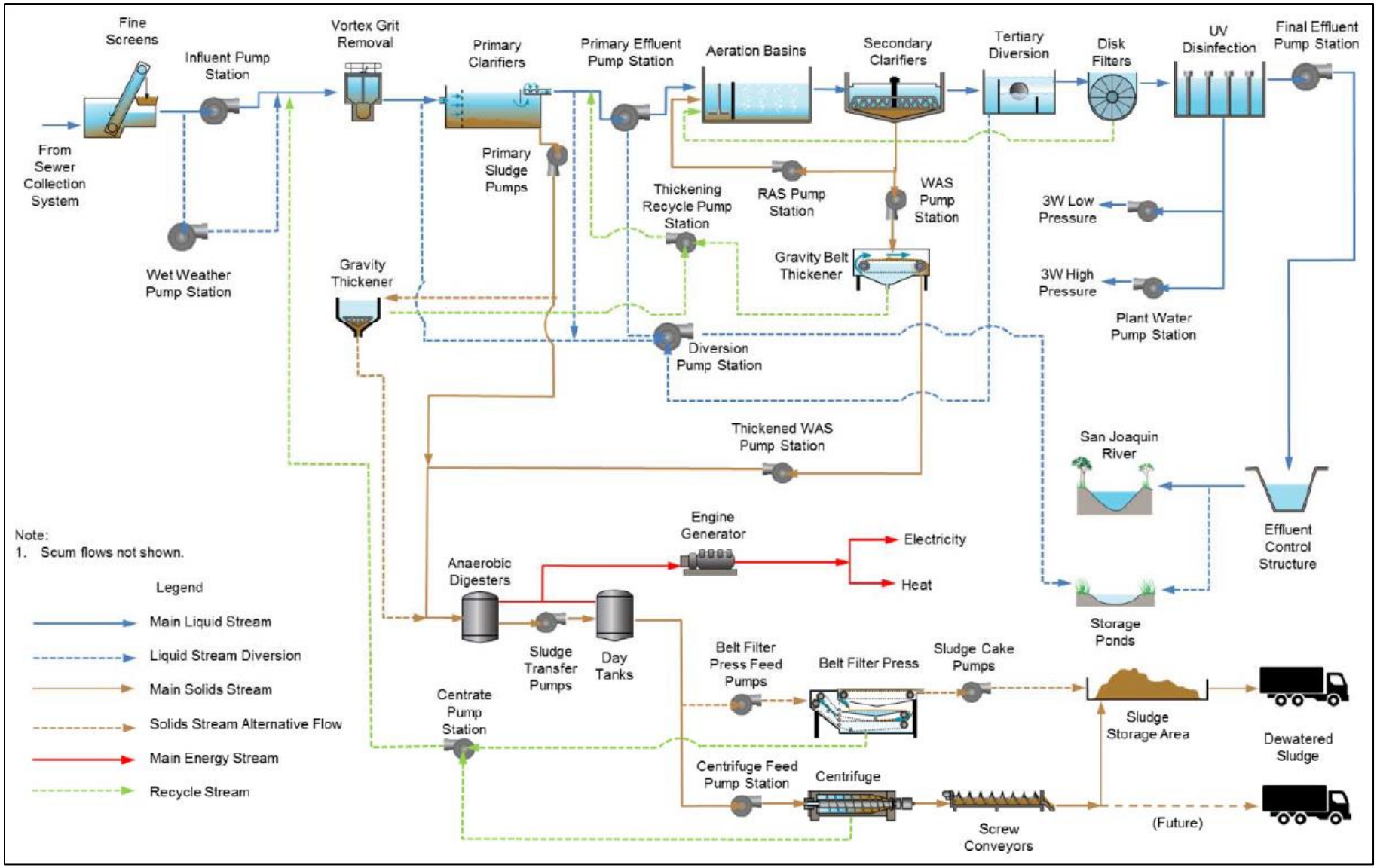


Figure C-2. Proposed City of Stockton Regional Wastewater Control Facility Modifications Project Flow Schematic



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 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), 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 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), 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, thorough 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 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 13350, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTW's)

All POTW's 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 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

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

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

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory accredited for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health), in accordance with the provision of Water Code section 13176. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. Data generated from field measurements such as pH, dissolved oxygen (DO), electrical conductivity (EC), turbidity, temperature, and residual chlorine, are exempt pursuant to Water Code Section 13176. A manual containing the steps followed in this program for any field measurements such as pH, DO, EC, 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:

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

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

I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the Facility can be collected prior to any plant return flows or treatment processes.
001A	EFF-001A	A location where a representative sample of the effluent from the Facility can be collected from the last connection through which wastes can be admitted to the outfall at Discharge Point 001A.
001B	EFF-001B	A location where a representative sample of the effluent from the Facility can be collected from the last connection through which wastes can be admitted to the outfall at Discharge Point 001B.
--	RSW-001	San Joaquin River, at Bowman Road, approximately located at 37° 57’ 51” N and 121°19’ 24” W.
--	RSW-002	San Joaquin River approximately 0.5 mile south of DIS-001A or DIS-001B, whichever discharge location is in use at the time the receiving water samples are collected.
--	RSW-002A	San Joaquin River, approximately 0.5 mile north of DIS-001A or DIS-001B, whichever discharge location is in use at the time the receiving water samples are collected.
--	RSW-003	San Joaquin River, at Deep Water Channel, approximately located at 37° 57’ 01” N and 121° 20’ 09” W.
--	RGW-001	Monitoring Wells MW-7 and MW-10.
--	UVS-001	A location where a representative sample of wastewater can be collected immediately downstream of the ultraviolet light (UV) disinfection system.
--	FIL-001	A location where a representative sample of the effluent from the tertiary filtration system can be collected prior to the disinfection system.
--	BIO-001	A location where a representative sample of biosolids can be obtained prior to removal from the Facility.
--	PND-123C	A location where a representative composite sample of the treatment ponds’ wastewater can be obtained.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
pH	standard units	Grab	Continuous
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) (5-day @ 20°Celcius)	mg/L	24-hour Composite	1/Week
Total Suspended Solids	mg/L	24-hour Composite	1/Week
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Month
Total Dissolved Solids	mg/L	Grab	1/Month

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.** Pollutants 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. Grab samples shall not be collected at the same time each day to get a complete representation of variations in the influent.

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

   d. **pH.** Monitoring may be ceased for up to 30 minutes each day for cleaning and calibration of probes.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations EFF-001A and EFF-001B

1. The Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use

at the time, in accordance with Table E-3 and the testing requirements described in section IV.A.2 below:

Table E-3. Effluent Monitoring

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) 5-day @ 20°Celcius	mg/L	24-hour Composite	3/Week
pH	standard units	Meter	Continuous
Total Suspended Solids (TSS)	mg/L	24-hour Composite	3/Week
Bromoform	µg/L	Grab	1/Month
Chlorodibromomethane	µg/L	Grab	1/Month
Dichlorobromomethane	µg/L	Grab	1/Month
Mercury, Total Recoverable	ng/L	Grab	1/Quarter
Ammonia Nitrogen, Total (as N)	mg/L	24-hr Composite	3/Week
Ammonia Nitrogen, Total (as N)	lbs/day	Calculate	3/Week
Chlorine, Total Residual	mg/L	Meter	Continuous
Chlorpyrifos	µg/L	Grab	1/Year
Diazinon	µg/L	Grab	1/Year
Dissolved Organic Carbon	mg/L	Grab	1/Month
Dissolved Oxygen	mg/L	Grab	3/Week
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Week
Hardness, Total (as CaCO3)	mg/L	Grab	1/Month
Methylmercury	ng/L	Grab	1/Quarter
Nitrate Nitrogen, Total (as N)	mg/L	24-hr Composite	1/Week
Nitrite Nitrogen, Total (as N)	mg/L	24-hr Composite	1/Week
Nitrate Plus Nitrite, Total (as N)	mg/L	Calculate	1/Week
Sulfur Dioxide or Sodium Bisulfite	mg/L	Meter	Continuous
Temperature	°F	Meter	Continuous
Total Coliform Organisms	MPN/100 mL	Grab	3/Week
Total Dissolved Solids	mg/L	Grab	1/Month
Turbidity	NTU	Meter	Continuous

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.** Pollutants 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** shall be collected from a 24-hour flow proportional composite.

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

d. **Ammonia.** Ammonia samples shall be collected concurrently with whole effluent toxicity monitoring.

e. **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.

f. **pH.** Monitoring for pH may be ceased for up to 30 minutes each day for cleaning and calibration of probes.

g. 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**.

h. Samples for **total coliform organisms** may be collected at any point following disinfection.

i. **Priority Pollutants**. For all priority pollutant constituents listed in Table E-3, the reporting level 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.

j. **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.

k. When discharging from Discharge Point No. 001B, monitoring for **chlorine, total residual, and sulfur dioxide/sodium bisulfite** is not required.

l. When discharging at Discharge Point 001A, **turbidity** shall be monitored at EFF-001A. When discharging at Discharge Point 001B, **turbidity** shall be monitored at FIL-001.

m. Monitoring for **Dissolved Organic Carbon** is only required after completion of the Facility Modifications Project.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

1. **Monitoring Frequency** – The Discharger shall perform **quarterly** acute toxicity testing, concurrent with effluent ammonia sampling.

2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time.

3. **Test Species** – Test species shall be rainbow trout (*Oncorhynchus mykiss*).

4. **Methods** – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

1. **Monitoring Frequency** – The Discharger shall perform **routine quarterly** chronic toxicity testing. Effective immediately and until 31 March 2025, the routine quarterly chronic toxicity testing shall only be conducted once during the first quarter and once during the fourth quarter. For the second and third quarterly self-monitoring reports, the Discharger shall submit a monitoring report stating that chronic toxicity monitoring is not required. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 chronic toxicity units (TUc) (as 100/EC25) AND a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and performing chronic toxicity testing using the species that exhibited toxicity in

order to calculate a median. The optional compliance monitoring events shall occur at least 1 week apart and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity.

2. **Sample Types** – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this MRP.

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

4. **Test Species** – The testing shall be conducted using the most sensitive species. The Discharger shall conduct chronic toxicity tests with *Ceriodaphnia dubia*, unless otherwise specified in writing by the Executive Officer.

5. **Methods** – The presence of chronic toxicity shall be estimated as specified in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual).

6. **Reference Toxicant** – As required by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP), all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. **Dilutions** – For routine and compliance chronic toxicity monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. For Toxicity Reduction Evaluation (TRE) monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

Samples	Dilution%	Dilution%	Dilution%	Dilution%	Dilution%	Controls
% Effluent	100	75	50	25	6.25	0
% Control Water	0	25	50	75	93.7	100

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

    a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Method Manual, and its subsequent amendments or revisions; or

    b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in the Method Manual.

C. WET Testing Notification Requirements. The Discharger shall notify the Central Valley Water Board within 24 hours after the receipt of test results exceeding the interim chronic toxicity effluent limitation established in section IV.A.2.a of the Order or the chronic toxicity effluent numeric trigger established in section VI.C.2.a.i of the Order, or an exceedance of the acute toxicity effluent limitation established in section IV.A.1.c of the Order.

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

1. **Chronic WET Reporting**. Routing and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self-monitoring report, and shall contain, at minimum:

    a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.

    b. The statistical methods used to calculate endpoints;

    c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

    d. The dates of sample collection and initiation of each toxicity test; and

    e. The results compared to the numeric toxicity monitoring trigger.

    Additionally, the monthly SMR's shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, Toxicity Evaluation Study (TES), or TRE monitoring.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the quarterly SMR's and reported as percent survival.

3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:

   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

   c. Any information on deviations or problems encountered and how they were dealt with.

E. Most Sensitive Species Screening. The Discharger is in the process of completing Facility upgrades that may impact the nature of the discharge. Upon completion of the Facility Modifications Project, the Discharger shall perform re-screening to re-evaluate the most sensitive species.

1. **Frequency of Testing for Species Sensitivity Screening.** Species sensitivity screening for chronic toxicity shall include, at a minimum, chronic WET testing results from four consecutive samples using the water flea (*Ceriodaphnia dubia*), fathead minnow (*Pimephales promelas*), and green alga (*Pseudokirchneriella subcapitata*). The tests shall be performed using 100 percent effluent and one control. If the first two species sensitivity re-screening events result in no change in the most sensitive species, the Discharger may cease the species sensitivity re-screening testing and the most sensitive species will remain unchanged.

2. **Determination of Most Sensitive Species.** If a single test in the species sensitivity screening testing exceeds 1 TUc (as 100/NOEC), then the species used in that test shall be established as the most sensitive species. If there is more than a single test that exceeds 1 TUc (as 100/NOEC), then the species exceeding 1 TUc (as 100/NOEC) that exhibits the highest percent effect shall be established as the most sensitive species. If none of the tests in the species sensitivity screening exceeds 1 TUc (as 100/NOEC), 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.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger is required to participate in the Delta Regional Monitoring Program.[1] 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 RSW-001 and RSW-003

1. The Discharger shall monitor the San Joaquin River at Monitoring Locations RSW-001 and RSW-003 in accordance with Table E-5 and the testing requirements described in section A.2 below:

[1] While participating in the Delta Regional Monitoring Program, the Discharger shall continue to submit receiving water data for temperature. At a minimum, one representative upstream receiving water temperature sample shall be submitted annually for the month of January. The temperature data shall be submitted in the January SMR and will be used to determine compliance with the temperature effluent limitation. Temperature data may be collected by the Discharger for this purpose or the Discharger may submit representative temperature data from the Delta RMP or other appropriate monitoring programs (e.g., Department of Water Resources, United States Geological Survey, etc.)

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	standard units	Grab	1/Month	(see requirement 2.a. below)
Dissolved Oxygen	mg/L	Grab	1/Month	(see requirement 2.a. below)
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	(see requirement 2.a. below)
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month	(see requirement 2.a., 2b., and 2.c. below)
Hardness, Total (as CaCO3)	mg/L	Grab	1/Month	(see requirement 2.a. below)
Temperature	°F	Grab	1/Month	(see requirement 2.a. below)
Turbidity	NTU	Grab	1/Month	(see requirement 2.a. below)

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. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been 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. pH and temperature shall be recorded at the time of ammonia sample collection.

   c. The RL shall be at or below 0.5 mg/L.

B. Monitoring Locations RSW-002 and RSW-002A

1. The Discharger shall monitor the San Joaquin River at Monitoring Locations RSW-002 and RSW-002A in accordance with Table E-6 and the testing requirements described in section B.2 below as follows:

Table E-6. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	standard units	Grab	1/Month	(see requirement 2.a. below)
Dissolved Oxygen	mg/L	Grab	1/Month	(see requirement 2.a. below)
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	(see requirement 2.a. below)
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month	(see requirement 2.a., 2b., and 2.c. below)
Hardness, Total (as CaCO3)	mg/L	Grab	1/Month	(see requirement 2.a. below)
Temperature	°F	Grab	1/Month	(see requirement 2.a. below)
Turbidity	NTU	Grab	1/Month	(see requirement 2.a. below)

2. **Table E-6 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-6:

   a. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been 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. pH and temperature shall be recorded at the time of ammonia sample collection.

   c. The RL shall be at or below 0.5 mg/L.

C. Monitoring Location RGW-001

1. The Discharger shall conduct groundwater monitoring at RGW-001 and any new groundwater monitoring wells in accordance with Table E-7 and the testing requirements described in section C.2 below:

Table E-7. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Depth to Groundwater	±0.01 feet	Measurement	2/Year
Groundwater Elevation	±0.01 feet	Calculated	2/Year
Gradient	feet/feet	Calculated	2/Year
Gradient Direction	degrees	Calculated	2/Year
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Year
pH	standard units	Grab	2/Year
Nitrate Nitrogen, Total (as N)	mg/L	Grab	2/Year

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. **Prior to construction and/or beginning a sampling program** of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network and shall be sampled and analyzed according to the schedule below. All samples shall be collected using U.S. EPA-approved methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

   b. **Prior to sampling**, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring at Monitoring Location RGW-001 shall include, at a minimum, the following:

   c. **Groundwater elevation** shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow, which must be reported.

   d. **Prior to removal of any groundwater monitoring wells**, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. *A Well Destruction Report* shall be submitted to the Central Valley Water Board that describes in detail the methods used to abandon monitoring wells in accordance with an approved *Groundwater Monitoring*

Well Condition Survey Report and Destruction Plan and includes copies of the well abandonment permits issued by the San Joaquin County Environmental Health Department.

e. **Applicable to all parameters.** Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been 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.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite or grab sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for priority pollutants (excluding asbestos).

b. Biosolids monitoring shall be conducted using the methods in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (U.S. EPA publication SW 846), as required in 40 C.F.R. section 503.8(b)(4). All results must be reported on a 100 percent dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in “100 percent dry weight” or “as is.”

B. Municipal Water Supply

1. **Monitoring Location SPL-001**. The Discharger shall monitor the municipal water supply at Monitoring Location SPL-001 as follows.

Table E-8. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling
Total Dissolved Solids	mg/L	Grab	1/Year
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Year
Standard Minerals	mg/L	Grab	1/Year

2. **Table E-8 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 requested by the Discharger that have been 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. If the water supply is from more than one source, **electrical conductivity and total dissolved solids** shall be reported for each source.

c. **Standard minerals** shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and shall include verification that the analysis is complete (i.e., cation/anion balance).

C. Filtration System and Ultraviolet Light (UV) Disinfection System

1. **Monitoring Locations UVS-001 and FIL-001.** When discharging from Discharge Point No. 001B, the Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Location UVS-001 in accordance with Table E-9 and the testing requirements described in section IX.C.2 below:

Table E-9. Filtration Monitoring and UV Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	(MGD)	Meter	UVS-001	Continuous
Turbidity	(NTU)	Meter	FIL-001	Continuous
Number of UV banks in operation	Number	Observation	N/A	Continuous
UV Transmittance	Percent (%)	Meter	UVS-001	Continuous
UV Dose	(mJ/cm 2)	Calculated	N/A	Continuous

2. **Table E-9 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-9:

a. **Applicable to all parameters**. Pollutants 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. **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 and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. The Discharger shall not decrease power settings or reduce the

number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

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

d. **UV Dose**. Report daily minimum hourly average UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose will be averaged based on the actual operation time.

D. Treatment Ponds

1. At a minimum, the Discharger shall monitor wastewater impounded in each Facility pond(s) at Monitoring Location PND-123C as required in Table E-10 and requirements a-c below, until the construction and commissioning of the Facility modifications are completed.

   a. Monitoring required until completion of the Facility Modifications Project.

   b. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been 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.

   c. Grab samples shall be collected from each pond at the specified sampling frequency and combined to create one composite sample.

Table E-10. Pond Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	feet	Measurement	1/Week	--
pH	standard units	Grab	1/Week	(see requirement b. above)
Dissolved Oxygen (see requirement c. above)	mg/L	Grab	1/Week	(see requirement b. above)
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Year (see requirements a. and c. above)	(see requirement b. above)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrate, Total (as N)	mg/L	Grab	2/Year (see requirements a. and c. above)	(see requirement b. above)

E. Effluent and Receiving Water Characterization

1. Since the Discharger is participating in the Delta Regional Monitoring Program, as described in Attachment E, section VIII, this section only requires effluent characterization monitoring. However, the ROWD for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents[2] during the term of the permit. The ambient background characterization monitoring event shall be conducted at Monitoring Location RSW-001. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with the ROWD. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point.

2. **Table E-11 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-11.

   a. **Once per Permit Term**. Samples shall be collected from the effluent (Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time) and analyzed for the constituents listed in Table E-11, below. Constituents shall be collected and analyzed consistent with the Discharger's Analytical Methods Report (MRP, X.D.1) using sufficiently sensitive analytical methods and Reporting Levels per the SSM Rule specified in 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). The "Reporting Level" is synonymous with the "Method Minimum Level" described in the SSM Rule. At minimum, one representative effluent characterization monitoring event shall be conducted during 2021 and the results of such monitoring shall be submitted to the Central Valley Water Board with the annual self-monitoring report. Each individual monitoring event shall provide representative sample results for the effluent.

[2] Appendix A to 40 C.F.R. part 423.

b. **Sample Type**. All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-11, below.

c. The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.

d. All **24-hour composite** samples shall be collected from a 24-hour flow proportional composite.

e. **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.

f. **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.

Table E-11. Effluent and Receiving Water Characterization Monitoring

VOLATILE ORGANICS

CTR Number	Volatile Organic Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
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 (see table note 1. below)	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

CTR Number	Volatile Organic Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
26	Chloroform	67-66-3	µg/L	Grab
35	Methyl Chloride	74-87-3	µg/L	Grab
23	Dibromochloromethane (see table note 1. below)	124-48-1	µg/L	Grab
27	Dichlorobromomethane (see table note 1. below)	75-27-4	µg/L	Grab
36	Methylene Chloride	75-09-2	µg/L	Grab
33	Ethylbenzene	100-41-4	µg/L	Grab
89	Hexachlorobutadiene	87-68-3	µg/L	Grab
34	Methyl Bromide (Bromomethane)	74-83-9	µg/L	Grab
94	Naphthalene	91-20-3	µg/L	Grab
38	Tetrachloroethylene (PCE)	127-18-4	µg/L	Grab
39	Toluene	108-88-3	µg/L	Grab
40	trans-1,2-Dichloroethylene	156-60-5	µg/L	Grab
43	Trichloroethylene (TCE)	79-01-6	µg/L	Grab
44	Vinyl Chloride	75-01-4	µg/L	Grab
21	Methyl-tert-butyl ether (MTBE)	1634-04-4	µg/L	Grab
41	1,1,1-Trichloroethane	71-55-6	µg/L	Grab
42	1,1,2-Trichloroethane	79-00-5	µg/L	Grab
28	1,1-Dichloroethane	75-34-3	µg/L	Grab
30	1,1-Dichloroethylene (DCE)	75-35-4	µg/L	Grab
31	1,2-Dichloropropane	78-87-5	µg/L	Grab
32	1,3-Dichloropropylene	542-75-6	µg/L	Grab
37	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	Grab
101	1,2,4-Trichlorobenzene	120-82-1	µg/L	Grab
29	1,2-Dichloroethane	107-06-2	µg/L	Grab
75	1,2-Dichlorobenzene	95-50-1	µg/L	Grab
76	1,3-Dichlorobenzene	541-73-1	µg/L	Grab
77	1,4-Dichlorobenzene	106-46-7	µg/L	Grab

SEMI-VOLATILE ORGANICS

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
60	Benzo(a)Anthracene	56-55-3	µg/L	Grab
85	1,2-Diphenylhydrazine	122-66-7	µg/L	Grab
45	2-Chlorophenol	95-57-8	µg/L	Grab
46	2,4-Dichlorophenol	120-83-2	µg/L	Grab
47	2,4-Dimethylphenol	105-67-9	µg/L	Grab
49	2,4-Dinitrophenol	51-28-5	µg/L	Grab

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
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 (see table note 2. below)	117-81-7	µg/L	Grab
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab
73	Chrysene	218-01-9	µg/L	Grab
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab
79	Diethyl Phthalate	84-66-2	µg/L	Grab
80	Dimethyl Phthalate	131-11-3	µg/L	Grab
86	Fluoranthene	206-44-0	µg/L	Grab
87	Fluorene	86-73-7	µg/L	Grab
88	Hexachlorobenzene	118-74-1	µg/L	Grab
90	Hexachlorocyclopentadiene	77-47-4	µg/L	Grab
91	Hexachloroethane	67-72-1	µg/L	Grab
92	Indeno(1,2,3-cd) Pyrene	193-39-5	µg/L	Grab
93	Isophorone	78-59-1	µg/L	Grab
98	N-Nitrosodiphenylamine	86-30-6	µg/L	Grab
96	N-Nitrosodimethylamine	62-75-9	µg/L	Grab
97	N-Nitrosodi-n-Propylamine	621-64-7	µg/L	Grab

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

NON-METALS/MINERALS

CTR Number	Non-Metal/Mineral Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
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	Grab

CTR Number	Non-Metal/Mineral Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
NL	Phosphorus, Total (as P)	7723-14-0	mg/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 (see table note 3. below)
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)	1746-01-6	mg/L	24-hour Composite

CONVENTIONAL PARAMETERS

CTR Number	Conventional Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
NL	pH (see table note 1. below)	--	SU	Grab
NL	Temperature (see table note 1. below)	--	ºC	Grab

NON-CONVENTIONAL PARAMETERS

CTR Number	Nonconventional Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
NL	Foaming Agents (MBAS)	MBAS	mg/L	24-hour Composite
NL	Hardness (as CaCO3) (see table note 1. below)	471-34-1	mg/L	Grab
NL	Specific Conductance (Electrical Conductivity or EC) (see table note 1. below)	EC	µmhos /cm	24-hour Composite
NL	Total Dissolved Solids (TDS) (see table note 1. below)	TDS	mg/L	24-hour Composite
NL	Dissolved Organic Carbon (DOC) (see table note 1. below)	DOC	mg/L	24-hour Composite

NUTRIENTS

CTR Number	Nutrient Parameters	CAS Number	Units	Effluent Sample Type (see table note 3. below)
7	Ammonia (as N) (see table note 1. below)	7664-41-7	mg/L	24-hour Composite
8	Nitrate (as N) (see table note 1. below)	14797-55-8	mg/L	24-hour Composite
9	Nitrite (as N) (see table note 1. below)	14797-65-0	mg/L	24-hour Composite

OTHER CONSTITUENTS OF CONCERN

CTR Number	Other Constituents of Concern	CAS Number	Units	Effluent Sample Type (see table note 3. below)
NL	1,2,3-Trichloropropane (TCP)	96-18-4	ug/L	Grab

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

Table E-11 Footnotes:

(1) The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.
(2) 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.
(3) 24-hour flow proportional composite.

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 SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMR's 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-12. 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
3/Week	Permit effective date	Sunday through Saturday	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
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

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

c. The Discharger shall attach all final laboratory reports from all contracted commercial laboratories, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed. This requirement only applies to constituents monitored per Table E-11 – Effluent and Receiving Water Characterization Monitoring, and per Table E-3 – Effluent Monitoring, for Bromoform, Chlorodibromomethane, Dichlorobromomethane, Mercury, Total Recoverable, Mercury (methyl), Chlorpyrifos, and Diazinon.

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" (electrical conductivity) the Discharger shall report the calendar annual average in the annual SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

b. **Mass Loading Limitations**. For BOD_5, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

Mass Loading (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34

When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.

c. **Removal Efficiency ($CBOD_5$ and TSS).** The Discharger shall calculate and report the percent removal of CBOD5 and TSS in the SMR's. 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 Receiving Water Limitations**. The Discharger shall report monthly in the SMR's the dissolved oxygen concentrations in the effluent (Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time) and the receiving water (Monitoring Locations RSW-001, RSW-002, RSW-002A, and RSW-003).

f. **Turbidity Receiving Water Limitations**. The Discharger shall calculate and report the turbidity increase in the receiving waters applicable to the natural turbidity conditions specified in section V.A.17.a-e of the Waste Discharge Requirements.

g. **Temperature Receiving Water Limitations**. The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-002 and RSW-002A for the averaging periods specified in section V.A.15.b of the Waste Discharge Requirements. Due to the tidal nature of the receiving water, the direction of flow in the San Joaquin River shall be recorded at the time of sampling to ascertain which location (i.e., Monitoring Location RSW-002 or Monitoring Location RSW-002A) is "upstream" or "downstream" of the Facility's discharge.

h. **Temperature Effluent Limitation.** For every day receiving water temperature samples are collected at Monitoring Locations RSW-002 and RSW-002A, the Discharger shall calculate and report the difference between the effluent temperature and the "upstream" receiving water temperature based on the difference in the effluent temperature at Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time, and receiving water temperature of grab samples collected at Monitoring Location RSW-002 or Monitoring Location RSW-002A, depending on the direction of San Joaquin River flow at the time of sampling. Due to the tidal nature of the receiving water, the direction of flow in the San Joaquin River shall be recorded at the time of sampling to ascertain which location (i.e., Monitoring Location RSW-002 or Monitoring Location RSW-002A) is "upstream" or "downstream" of the Facility's discharge.

i. **Chlorpyrifos and Diazinon Effluent Limitations.** The Discharger shall calculate and report the value of SAMEL and SAWEL for the effluent, using the equations in section IV.A.1.h of the Order, and consistent with the Compliance Determination Language in section VII.I of the Waste Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

1. DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMR's together with SMR's using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal will be in addition to electronic SMR submittal.

Information about electronic DMR submittal (http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring/) 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. 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 WDR's.

3. **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 the Discharger is not in compliance with any conditions or requirements of this Order, including non-compliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for non-compliance 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, flow proportioned, 24-hour composite 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. This will consist of an annual full priority pollutant scan. 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.

      Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 C.F.R. part 136 and amendments thereto.

   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 (SIUs) 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. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the SIUs. The summary shall include:

   i. The names and addresses of the SIUs 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.

g. 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; and

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.

xi. Disconnection from discharge to the POTW.

h. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIUs;

i. 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;

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

k. 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
NPDES Wastewater@waterboards.ca.gov
and the
U.S. EPA Region 9 Pretreatment Coordinator
R9Pretreatment@epa.gov

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

   a. Report of Waste Discharge (Form 200);

   b. NPDES Form 1;

   c. NPDES Form 2A;

   d. NPDES Form 2S;

   e. **Mixing Zone Requests**. A mixing zone analysis for consitutents the Discharger is requesting the continuation of dilution credits and mixing zones in the calculation of water quality-based effluent limits (e.g., chlorodibromomethane and dichlorobromomethane); and

   f. **Bay-Delta Plan Southern Delta Salinity Objectives**. As discussed in Section IV.C.3 of the Fact Sheet it has been determined it is infeasible for the Facility to comply with traditional numeric water quality-based effluent limits for electrical conductivity per the Bay-Delta Plan Southern Delta Salinty Objectives. To continue implementation of the alternative effluent limitations for electrical conductivity, the following shall be submitted with the ROWD:

      i. An evaluation of whether technological or economic changes have made previously deemed infeasible upgrades to control salinity in the POTW's effluent feasible;

      ii. A survey of industrial sources of salinity regulated by the industrial pretreatment program, along with all annual reports submitted pursuant to that program documenting the implementation of salinity management strategies at the industrial facility within the collection system area;

      iii. Documentation of source control measures taken. If alternative lower-salinity source water supplies were available but not utilized, a justification for not using such supplies shall be provided; and

      iv. An evaluation of the efficacy of actions taken to limit or ban the use of residential self-generating water softeners or to impose efficiency

standards on water softeners within the POTW's collection system area. This evaluation shall include the estimated number of such water softeners in the POTW's collection system area. If a ban against the use of self-generating water softeners is not instituted, a justification why a ban is not feasible.

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

   a. The pollution prevention plan for mercury shall be implemented in accordance with section VI.C.3.a.

   b. Beginning 1 February 2021 and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including a summary of total mercury and methylmercury monitoring results.

   c. To be determined. Following 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, final compliance date, etc. Consequently, the start of Phase 2 and the final compliance date is uncertain at the time this Order was adopted.

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 to demonstrate compliance with this reporting requirement.

Table E-13. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Intentionally left blank	Standard Reporting Requirements	Intentionally left blank	Intentionally left blank
1	Report of Waste Discharge	31 March 2024	MRP X.D.4
2	Analytical Methods Report	20 April 2020	MRP X.D.1
3	Analytical Methods Report Certification Form	1 January 2021	MRP X.E.3
4	Annual Operations Report	1 February 2021	MRP X.D.2
5	Annual Operations Report	1 February 2022	MRP X.D.2
6	Annual Operations Report	1 February 2023	MRP X.D.2
7	Annual Operations Report	1 February 2024	MRP X.D.2
8	Annual Operations Report	1 February 2025	MRP X.D.2
Intentionally left blank	Compliance Schedule for Final Effluent Limitations for Chronic WET (WDR Section VI.C.7.a)	Intentionally left blank	Intentionally left blank
9	**Method of Compliance Workplan.** Submit workplan that ensures compliance with final effluent limitations for chronic toxicity by the final compliance date.	1 October 2020	WDR VI.C.7.a
10	**Final Compliance.** Submit report demonstrating compliance with the final effluent limits for chronic toxicity.	31 March 2025	WDR VI.C.7.a
11	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.	1 February 2021	WDR VI.C.7.a
12	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including	1 February 2022	WDR VI.C.7.a

Report #	Technical Report	Due Date	CIWQS Report Name
	studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.		
13	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.	1 February 2023	WDR VI.C.7.a
14	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.	1 February 2024	WDR VI.C.7.a
Intentionally left blank	Compliance Schedule for Final Effluent Limitations for Methylmercury (WDR Section VI.C.7.b)	Intentionally left blank	Intentionally left blank
Intentionally left blank	Phase I	Intentionally left blank	Intentionally left blank
15	Phase 1 Methylmercury Control Study Work Plan	Complete	WDR VI.C.7.b
16	Pollution Prevention Plan for Mercury (see requirement 5.a. above)	Complete	WDR VI.C.7.b
17	Implement Phase 1 Methylmercury Control Study Work Plan	Complete	WDR VI.C.7.b
18	Mercury Pollution Prevention Plan Annual Progress Reports (see requirement 5.b. above)	1 February 2021	WDR VI.C.7.b

Report #	Technical Report	Due Date	CIWQS Report Name
19	Mercury Pollution Prevention Plan Annual Progress Reports (see requirement 5.b. above)	1 February 2022	WDR VI.C.7.b
20	Mercury Pollution Prevention Plan Annual Progress Reports (see requirement 5.b. above)	1 February 2023	WDR VI.C.7.b
21	Mercury Pollution Prevention Plan Annual Progress Reports (see requirement 5.b. above)	1 February 2024	WDR VI.C.7.b
22	Mercury Pollution Prevention Plan Annual Progress Reports (see requirement 5.b. above)	1 February 2025	WDR VI.C.7.b
23	Final Phase 1 Methylmercury Control Study	Complete	WDR VI.C.7.b
Intentionally left blank	Phase 2	Intentionally left blank	Intentionally left blank
24	Implement Methylmercury Control Programs	TBD (see requirement 5.c. above)	WDR VI.C.7.b
25	Full Compliance	31 December 2030 (see requirement 5.c. above)	WDR VI.C.7.b
Intentionally left blank	Compliance Schedule for Nitrate Plus Nitrite (WDR Section VI.C.7.c)	Intentionally left blank	Intentionally left blank
26	**Method of Compliance Work Plan.** Submit work plan that ensures compliance with final effluent limitations for nitrate plus nitrite by the final compliance date.	Complete	WDR VI.C.7.c
27	**Submit and Implement Pollution Prevention Plan for Nitrate Plus Nitrite.** The pollution prevention plan shall be prepared and implemented in accordance with section VI.B.3.a of the Fact Sheet (Attachment F).	Complete	WDR VI.C.7.c
28	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented,	1 June 2020	WDR VI.C.7.c

Report #	Technical Report	Due Date	CIWQS Report Name
	and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.		
29	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.	1 June 2021	WDR VI.C.7.c
30	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.	1 June 2022	WDR VI.C.7.c
31	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.	1 June 2023	WDR VI.C.7.c
32	**Annual Progress Reports.** The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented,	1 June 2024	WDR VI.C.7.c

Report #	Technical Report	Due Date	CIWQS Report Name
	and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.		
33	**Complete Treatment Technology Evaluation and Pilot Testing.** Submit with the annual progress report confirmation of compliance with this task.	Complete	WDR VI.C.7.c
34	**Select Preferred Treatment Option and Complete Preliminary Design.** Submit with the annual progress report confirmation of compliance with this task.	Complete	WDR VI.C.7.c
35	**Complete Financing Plan.** Submit with the annual progress report a financing plan for the selected compliance project(s) and a schedule for obtaining funding.	Complete	WDR VI.C.7.c
36	Complete CEQA Documentation for Implementation of the Preferred Treatment Option. File CEQA Submit environmental documents to the State Clearinghouse.	Complete	WDR VI.C.7.c
37	**Award Construction Bid.** Submit a letter confirming and describing detailed information on awarded construction bid process (e.g., date awarded, company, etc.).	Complete	WDR VI.C.7.c
38	**Obtain Funding.** Submit with the annual progress report confirmation of compliance with this task.	1 June 2021	WDR VI.C.7.c
39	Complete Construction of Preferred Treatment Option. Submit construction approval documentation.	31 December 2023	WDR VI.C.7.c
40	**Final Compliance.** Submit report demonstrating compliance with the final effluent limits for nitrate plus nitrite.	1 June 2024	WDR VI.C.7.c
Intentionally left blank	Other Reports	Intentionally left blank	Intentionally left blank
41	Best Management Practices Plan for Salinity	1 October 2020	WDR VI.C.3.b

Report #	Technical Report	Due Date	CIWQS Report Name
42	Annual Report on implementation of Salinity Best Management Practices Plan	1 February 2021	WDR VI.C.3.b
43	Annual Report on implementation of Salinity Best Management Practices Plan	1 February 2022	WDR VI.C.3.b
44	Annual Report on implementation of Salinity Best Management Practices Plan	1 February 2023	WDR VI.C.3.b
45	Annual Report on implementation of Salinity Best Management Practices Plan	1 February 2024	WDR VI.C.3.b
46	Annual Report on implementation of Salinity Best Management Practices Plan	1 February 2025	WDR VI.C.3.b
47	Annual Pretreatment Reports	1 March 2021	MRP X.D.3
48	Annual Pretreatment Reports	1 March 2022	MRP X.D.3
49	Annual Pretreatment Reports	1 March 2023	MRP X.D.3
50	Annual Pretreatment Reports	1 March 2024	MRP X.D.3
51	Annual Pretreatment Reports	1 March 2025	MRP X.D.3
52	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2020	MRP X.D.6
53	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2021	MRP X.D.6
54	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2022	MRP X.D.6
55	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2023	MRP X.D.6
56	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2024	MRP X.D.6

ATTACHMENT F – FACT SHEET

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Tables

ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

Waste Discharge ID:	5B390107001
CIWQS Facility Place ID:	258739
Discharger:	City of Stockton
Name of Facility:	Regional Wastewater Control Facility
Facility Address:	2500 Navy Drive
Facility City, State Zip:	Stockton, CA 95206
Facility County:	San Joaquin County
Facility Contact, Title and Phone Number:	Deedee Antypas, Deputy Director, Wastewater, Municipal Utilities Department, (209) 937-7425
Authorized Person to Sign and Submit Reports:	Deedee Antypas, Deputy Director, Wastewater, Municipal Utilities Department, (209) 937-7425
Mailing Address:	Same as Facility Address
Billing Address:	Same as Facility 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:	Not Applicable
Facility Permitted Flow:	55 million gallons per day, average dry weather flow
Facility Design Flow:	55 million gallons per day, average dry weather flow

Watershed:	Sacramento-San Joaquin Delta
Receiving Water:	San Joaquin River
Receiving Water Type:	Estuary

A. The City of Stockton (hereinafter Discharger) is the owner and operator of the City of Stockton Regional Wastewater Control Facility (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 San Joaquin River, a water of the United States within the Sacramento-San Joaquin Delta. The Discharger was previously regulated by Order R5-2014-0070-03 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079138 adopted on 6 June 2014 and amended on 9 October 2014, 11 December 2015, and 9 June 2017, with an expiration date of 31 July 2019. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

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

D. The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for reissuance of its Waste Discharge Requirements (WDR's) and NPDES permit on 29 January 2019. The application was deemed complete on 30 January 2019. A site visit was conducted on 28 March 2019 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

E. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Under 40 C.F.R. section 122.6(d), States authorized to administer the NPDES program may administratively continue State-issued permits beyond their expiration dates until the effective date of the new permits, if State law allows it. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the City of Stockton, Port of Stockton, and surrounding unincorporated areas of San Joaquin County, and serves a population of

approximately 350,000. The design average dry weather flow capacity of the Facility is 55 MGD. The Discharger's service area encompasses over 116,000 sewer connections and approximately 900 miles of sanitary sewer lines. Sources of wastewater in the service area are primarily domestic, but also include both commercial and industrial connections.

The Facility is situated on both the eastern and western banks of the San Joaquin River and is connected via a bridge over the receiving water. The Facility consists of primary treatment, secondary treatment, and sludge processing facilities east of the San Joaquin River. Wastewater is then routed across the San Joaquin River for further secondary treatment through facultative ponds and constructed wetlands, followed by tertiary treatment and disinfection facilities. The Facility discharges tertiary treated effluent to the San Joaquin River. The discharge occurs at either the west-bank outfall or the tnew east-bank outfall being constructed in 2023.

A. Description of Wastewater and Biosolids Treatment and Controls

1. **Existing Facility.** The treatment system in the section of the Facility east of the San Joaquin River includes screening, grit removal, raw sewage pumps, and primary sedimentation, where settling is enhanced. After wastewater passes through the primary clarifiers, it is pumped to a biotower treatment process and further routed to secondary clarifiers. Effluent from the secondary clarifiers is pumped from the east section of the Facility beneath the San Joaquin River to the facultative pond system. Additional secondary treatment and water storage is available in the facultative ponds. Additional treatment is also available through engineered treatment wetlands on the west side of the San Joaquin River. Treatment through the facultative ponds and/or constructed wetlands are optional flow paths dependent on a variety of operational factors. Effluent from the facultative ponds, constructed wetlands, or diversion structures (as applicable) is routed to the Facility's tertiary treatment system.

   Tertiary treatment consists of a nitrifying biotower for ammonia removal, followed by dissolved air floatation units, where removal efficiencies are enhanced through chemical addition. Following the dissolved air floatation units, wastewater is routed through dual media tertiary filters and disinfected using chlorination/dichlorination prior to discharge to the San Joaquin River. The tertiary treatment process at the Facility is less efficient during colder months, as longer detention times in the facultative ponds and constructed wetlands results in cooler wastewater inflow to the nitrifying biotowers.

   Within the east section of the Facility, solids from the primary and secondary sedimentation processes are either routed to gravity thickeners, gravity belt thickeners, or pumped to the anaerobic digesters directly. Following anaerobic digestion, sludge is routed to a holding tank. Digested solids are further conditioned and dewatered using belt filter presses. Dewatered solids are hauled off-site by a private contractor and routinely recycled on agricultural lands as a source of nutrients and soil amendment. In an emergency, solids can be used as daily cover for solid waste at a landfill. The Facility produces

approximately 4,017 dry metric tons of dried biosolids annually. Transportation and disposal/reuse of the biosolids is regulated by U.S. EPA under 40 C.F.R. part 503.

2. **Future Facility.** Based on information provided by the Discharger, the Facility will be modified in order to comply with certain requirements in this Order consistent with the applicable compliance deadlines. The Discharger has initiated its Facility Modifications Project to increase the reliability and efficiency of the wastewater and solids treatment systems, improve the treatment processes based on existing and projected flows, and reduce nitrate plus nitrite (as N) concentrations in the final effluent. The existing Facility will remain in operation during the rehabilitation and construction phase of the Facility Modifications Project.

   The modifications include upgrades and/or additions to the following unit processes: headworks, grit removal, primary clarification, secondary treatment, tertiary treatment, UV disinfection, solids handling, chemical addition, flow diversion and storage, and personnel buildings. Figure C-2 illustrates the process flow diagram of the Discharger's proposed modifications that were considered for the Facility modifications project. The upgraded Facility treatment includes fine screening, grit removal, primary clarification, activated sludge with nutrient removal, secondary clarification, tertiary filtration with disk filters, and UV disinfection. Solids treatment include primary sludge thickening in the primary clarifiers with primary sludge pumping, gravity thickening of primary sludge, gravity belt thickening of waste activated sludge, anaerobic digestion, digested sludge holding, centrifuge dewatering with belt filter press backup and on-site storage and hauling of dewatered cake.

   The modifications will not involve further expansion of the Facility's design treatment capacity. All treatment will be processed at the main plant on the east side of the San Joaquin River. An Environmental Impact Report (EIR) for the Facility Modifications Project was certified on 26 March 2019 and construction activities began in August 2019 and are anticipated to conclude in spring 2023. Commissioning activities are proposed to be completed before 1 June 2024.

B. Discharge Points and Receiving Waters

1. The Facility is located in section 16, T1N, R6E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001A (west-bank outfall) or Discharge Point No 001B (east bank outfall) to the San Joaquin River, a water of the United States within the legal boundary of the Sacramento-San Joaquin Delta. The discharge occurs either at the west-bank outfall at latitude 37° 56' 15" N and longitude -121° 20' 05" W or at the new east-bank outfall at latitude 37° 56' 6" N and longitude -121° 19' 46" W. Discharge from the new east-bank outfall will occur while commissioning the

outfall and after the completion of the project, when all discharge will cease from the west-bank outfall.

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

Effluent limitations contained in Order R5-2014-0070-03 for discharges from Discharge Point 001A and Discharge Point 001B (Monitoring Locations EFF-001A and EFF-001B, respectively) and representative monitoring data from the term of Order R5-2014-0070-03 (November 2015 through October 2018) are as follows with Table F-2- notes 1-31:

1. Applied as an average dry weather flow effluent limitation.

2. Represents the maximum observed daily discharge.

3. Based on an average dry weather flow of 55 MGD.

4. Represents the minimum reported percent removal.

5. Interim annual mass loading effluent limitation, effective until 31 December 2030.

6. Represents the maximum total calendar annual mass load.

7. Effluent limitations applicable from 1 April through 31 October.

8. Effluent limitations applicable from 1 November through 30 November.

9. Effluent limitations applicable from 1 December through 31 March.

10. Applied as a 4-day average effluent limitation.

11. Applied as a 1-hour average effluent limitation.

12. Average Monthly Effluent Limitation (AMEL)
S(AMEL) = Cd (M-avg)/0.079+ Cc (M-avg)/0.012≤ 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

13. Average Weekly Effluent Limitation (AWEL)
S(AWEL) = Cd (W-avg)/0.079+ Cc (W-avg)/0.012≤ 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

14. Effluent limitations applicable from 1 September through 30 November.

15. Represents the minimum reported dissolved oxygen reading.

16. Effluent limitations applicable from 1 December through 31 August.

17. Applied as an annual average effluent limitation.

18. Represents the maximum observed annual average concentration.

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

20. Interim effluent limitation, effective until 1 June 2024.

21. Final effluent limitation effective 1 June 2024.

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

23. Reflects the maximum difference between the effluent temperature measured at Monitoring Location EFF-001A or EFF-001B, depending on whichever discharge location is in use at the time, and the temperature of the receiving water measured at Monitoring Location RSW-002 or RSW-002A, whichever is "upstream" at the time of sampling.

24. Applied as a 7-day median effluent limitation.

25. Not to be exceeded more than once in any 30-day period.

26. Applied as an instantaneous maximum effluent limitation.

27. Minimum percent survival for any one bioassay.

28. Median percent survival of three consecutive acute bioassays.

29. Represents the minimum observed percent survival.

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

31. ND as Non-Detect.

Table F-2. Historic Effluent Limitations

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	MDEL 55 (see table note 1. above)	--	--	44.8 (see table note 2. above)

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15 MDEL 20	2.6	3.5	5.0
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)	lbs/day (see table note 3. above)	AMEL 4,600 AWEL 6,900 MDEL 9,200	719	746	986
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)	% removal	AMEL 85	99 (see table note 4. above)	--	--
pH	standard units	MDEL 6.5 – 8.5	--	--	6.5 – 8.2
Total Suspended Solids	mg/L	AMEL 10 AWEL 15 MDEL 20	5.1	5.7	8.0
Total Suspended Solids	lbs/day (see table note 3. above)	AMEL 4,600 AWEL 6,900 MDEL 9,200	1,157	1,397	1,803
Total Suspended Solids	% removal	AMEL 85	98.4 (see table note 4. above)	--	--
Bromoform	µg/L	AMEL 38 MDEL 115	9.79	--	9.79
Chlorodibromo methane	µg/L	AMEL 31 MDEL 86	15.59	--	15.59
Dichlorobromo methane	µg/L	AMEL 19 MDEL 38	11.64	--	11.64
Mercury, Total Recoverable	grams/year	AMEL 217 (see table note 5. above)	26 (see table note 6. above)	--	--
Ammonia, Total (as N)	mg/L (see table note 7. above)	AMEL 1.2 MDEL 4.0	0.93	--	1.6

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Ammonia, Total (as N)	mg/L (see table note 8. above)	AMEL 2.3 MDEL 9.9	1.06	--	4.2
Ammonia, Total (as N)	mg/L (see table note 9. above)	AMEL 2.4 MDEL 9.6	4.0	--	8.9
Ammonia, Total (as N)	lbs/day (see table notes 3. and 7. above)	AMEL 560 MDEL 1,900	161	--	355
Ammonia, Total (as N)	lbs/day (see table notes 3. and 8. above)	AMEL 1,100 MDEL 4,600	235	--	810
Ammonia, Total (as N)	lbs/day (see table notes 3. and 9. above)	AMEL 1,200 MDEL 4,500	1,076	--	2,393
Chlorine, Total Residual	mg/L	AWEL 0.011 (see table note 10. above) MDEL 0.019 (see table note 11. above)	--	--	ND
Chlorpyrifos	µg/L	(see table notes 12. and 13. above)	ND	--	ND
Diazinon	µg/L	(see table notes 12. and 13. above)	ND	--	ND
Dissolved Oxygen	mg/L (see table note 14. above)	MDEL 6.0	--	--	7.6 (see table note 15. above)
Dissolved Oxygen	mg/L (see table note 16. above)	MDEL 5.0	--	--	7.1 (see table note 15. above)
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,300 (see table note 17. above)	1,025 (see table note 18. above)	--	--

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Methylmercury	grams/year	AMEL 13 (see table note 19. above)	--	--	--
Nitrate Plus Nitrite, Total (as N)	mg/L (see table note 20. above)	MDEL 31	--	--	29
Nitrate Plus Nitrite, Total (as N)	mg/L (see table note 21. above)	AMEL 10	--	--	--
Temperature	°F	(see table note 22. above)	--	--	12.74 (see table note 23. above)
Total Coliform Organisms	MPN/100 mL	AMEL 2.2 (see table note 24. above) AWEL 23 (see table note 25. above) MDEL 240 (see table note 26. above)	--	--	170
Acute Toxicity	% Survival	MDEL 70/90 (see table notes 27. and 28. above)	--	--	95 (see table note 29. above)
Chronic Toxicity	TUc	(see table note 30. above)	--	--	>8

D. Compliance Summary

1. The Central Valley Water Board issued Administrative and Civil Liability (ACL) Complaint R5-2016-0522 on 28 March 2016, which proposed to assess a civil liability of $3,000 against the Discharger for effluent violations for chlorine residual that occurred on 3 July 2015 under Order R5 2014-0070-01. The Discharger paid the mandatory minimum penalty of $3,000.

2. The Central Valley Water Board issued ACL Complaint R5-2017-0545 on 11 September 2017, which proposed to assess a civil liability of $3,000 against the Discharger for effluent violations for ammonia that occurred on 31 December

2016 and 31 January 2017 under Order R5 2014-0012-02. The Discharger paid the mandatory minimum penalty of $3,000.

E. Planned Changes

The Discharger is in the process of completing Facility upgrades to increase the reliability of the liquid and solids treatment processes, improve reliability in treating existing and projected flows, reduce energy costs and provide reliable renewable energy alternative, and reduce nitrate plus nitrite concentrations in the final effluent. The specific objectives of the upgrades project are to:

1. Replace or rehabilitate aging treatment facilities thereby extending the useful life of the Facility;
2. Reduce or eliminate unnecessary treatment processes to enhance operations;
3. Comply with final effluent limitations;
4. Improve working conditions and operations support facilities for increased efficiency;
5. Improve energy efficiency and reduce reliance on the external energy providers; and
6. Implement a project that reflects the Discharger's priorities and funding capacity.

The Facility modifications consist of demolition of certain treatment process components and buildings, rehabilitation and repurposing of some existing components and buildings, and construction of new treatment process components and buildings. The existing Facility will remain in operation during construction of new and rehabilitated facilities to ensure continual wastewater treatment services. The upgrades do not involve an expansion of the current Facility's treatment capacity. Construction and commissioning of the Facility modifications are planned to be completed prior to 1 June 2024.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

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

B. California Environmental Quality Act (CEQA)

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

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

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

   a. **Basin Plan.** The Central Valley Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Beneficial uses applicable to the San Joaquin 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)
001A and 001B	San Joaquin River	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); navigation (NAV); and commercial and sport fishing (COMM).

   b. **Bay-Delta Plan**. *The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in May 1995 by the State Water Board superseding the 1991 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

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

The Bay-Delta Plan includes water quality objectives for electrical conductivity for the South Delta in the vicinity of the discharge. On 25 February 2019, the Office of Administrative Law approved the 2018 Bay-Delta Plan amendments, which include a numeric water quality objective of 1,000 µmhos/cm maximum, applied as a 30-day running average of mean daily electrical conductivity.

Section 303(c) of the Clean Water Act requires a state to submit water quality standards to U.S. EPA for review and approval. On 31 March 2019, the State Water Board submitted revised southern Delta salinity objectives to U.S. EPA. In a response dated 11 June 2019, U.S. EPA stated that it could not conduct a substantive review based on the information provided by the State Water Board and further requested that the State Water Board submit the minimum required information specified by 40 CFR section 131.6 within 90 days. The State Water Board subsequently resubmitted the revised southern Delta salinity objectives on 26 August 2019 in compliance with 40 C.F.R. section 131.6. At this time, U.S. EPA has not acted to approve or deny the revised southern Delta salinity objectives.

Pursuant to 40 C.F.R. section 131.21(a), the Regional Administrator shall either notify the State within 60 days that the revisions are approved, or notify the State within 90 days that the revisions are disapproved. In addition, 40 C.F.R. section 131.21(e) states that a State or authorized Tribe's applicable water quality standard for purposes of the Clean Water Act remains the applicable standard until U.S. EPA approves a change, deletion, or addition to that water quality standard, or until U.S. EPA promulgates a more stringent water quality standard. As a result, the applicable water quality standard for electrical conductivity pursuant to the Clean Water Act remains 700 µmhos/cm from April to August and 1000 µmhos/cm from September to March as noted in Table 2, Water Quality Objectives for Agricultural Beneficial Uses, in the Bay-Delta Plan. (see Table F-10 below). 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 from 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, as defined in the Thermal Plan. 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."

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.

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

February 2001. These rules contain federal water quality criteria for priority pollutants.

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

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

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

6. **Domestic Water Quality**. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring

discharges to meet maximum contaminant levels (MCL's) designed to protect human health and ensure that water is safe for domestic use.

7. **Endangered Species Act Requirements**. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

8. **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 indicates that acetaldehyde was discharged to the Facility. The Central Valley Water Board has not adopted numeric water quality objectives for acetaldehyde in the Basin Plan. Therefore, 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 Discharger has submitted a Notice of Intent (NOI) and has been approved for coverage under 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). Therefore, this Order does not regulate storm water.

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 Monitoring and Reporting Program (MRP) for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. 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 (SSMP's) and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.

    The Discharger is subject to the requirements of, and must comply with the General Order, as amended by State Water Board Order WQ 2013-0058-EXEC 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.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 U.S. EPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as *"…those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 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 southern portion of the Sacramento-San Joaquin Delta, which includes the San Joaquin River, includes chlorpyrifos, diazinon,

dichlorodiphenyltrichloroethane (DDT), electrical conductivity, group A pesticides, invasive species, mercury, and unknown toxicity.

2. **Total Maximum Daily Loads (TMDL's).** Table F-4, below, identifies the 303(d) listings and any applicable TMDLs. This permit includes WQBELs that are consistent with the assumptions and considerations of the applicable WLAs in the 2007 TMDL for diazinon and chlorpyrifos and the 2011 TMDL for methylmercury.

Table F-4. Basin Plan Beneficial Uses

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

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

E. Other Plans, Polices and Regulations

1. **Title 27**. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

   a. The waste consists primarily of domestic sewage and treated effluent;

b. The waste discharge requirements are consistent with water quality objectives; and

c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page 4-27 contains an implementation policy, *"Policy for Application of Water Quality Objectives"*, that specifies that the Central Valley Water Board *"will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*" This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's *"Policy for Application of Water Quality Objectives"*)(40 C.F.R. section 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

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

A. Discharge Prohibitions

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

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR section122.41(m)(4))**. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the Facility. Federal regulations, 40 C.F.R. section 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

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

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

5. **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. Order R5-2014-0070-03 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on 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 POTW's [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 5-day carbonaceous biochemical oxygen demand (CBOD5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **$CBOD_5$ 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 CBOD5 and TSS. Consistent with Order R5-2014-0070-03 and as authorized in 40 C.F.R. section 133.102(a)(4), the

Central Valley Water Board has chosen to implement minimum effluent quality requirements for CBOD5 in lieu of BOD5 requirements. 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 CBOD5 and TSS over each calendar month. This Order requires WQBEL's that are equal to or more stringent than the secondary technology-based treatment described in 40 C.F.R. part 133 (see section IV.C.3.d of the Fact Sheet for a discussion on pathogens, which includes WQBEL's for CBOD5 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 WQBEL's for pH to comply with the Basin Plan's water quality objectives for pH.

Summary of Technology-based Effluent Limitations Discharge Point 001A and Discharge Point 001B

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

Parameter	Units	Effluent Limitations
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) (5-day @ 20°C)	mg/L	AMEL 25 AWEL 40
$CBOD_5$	% Removal	AMEL 85
Total Suspended Solids (TSS)	mg/L	AMEL 30 AWEL45
TSS	% Removal	AMEL 85
pH	standard units	Instantaneous Max 6.0 Instantaneous Min 9.0

Table F-5 Notes:

1. Note that more stringent WQBEL's for $CBOD_5$, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.c of this Fact Sheet).

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

1. Scope and Authority

CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as technology equivalence requirements, more stringent than secondary treatment requirements that are

necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, 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, WQBEL's must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 C.F.R. section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBEL's when necessary is intended to protect the designated uses of the receiving water, as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

Finally, 40 C.F.R. section 122.44(d)(1)(vii) requires effluent limits to be developed consistent with any available WLA's developed and approved for the discharge.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for MUN.

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

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal regulations, 40 C.F.R.

sections 131.2 and 131.10, require that all waters of the state be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish 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 San Joaquin River within the legal boundary of the Sacramento-San Joaquin Delta. The San Joaquin River is tidally influenced near the discharge, with flows moving past the outfall several times before the net San Joaquin River flow pushes the water into the Deep Water Ship Channel. San Joaquin River flow near the discharge is affected, in part, by flow at Vernalis and diversions into the Old River as affected by pumping at the south Delta water supply diversions.

   The Sacramento-San Joaquin Delta is vital to California as it comprises over 700 miles of interconnected waterways and encompasses 1,153 square miles. The Sacramento-San Joaquin Delta is home to over 280 species of birds and more than 50 species of fish, making it one of the most ecologically important aquatic habitats in the state. Drinking water for over 25 million Californians is pumped from the Sacramento-San Joaquin Delta via the State Water Project, Central Valley Water Project, and local water intakes. The Sacramento-San Joaquin Delta supports California's trillion-dollar economy with $27 billion annually for agriculture. Additionally, the Delta has 12 million user-days for recreation each year.

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

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from November 15 through October 2018, which includes effluent and ambient background data submitted in SMRs.

c. Assimilative Capacity/Mixing Zone.

   i. **Regulatory Guidance for Dilution Credits and Mixing Zones.** The CWA directs the states to adopt water quality standards to protect the quality of its waters. U.S. EPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR parts 122.44 and 122.45). The U.S. EPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and

guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) (TSD).

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

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

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

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

A: 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. **San Joaquin River Characteristics.** The Facility discharges to the San Joaquin River within the legal boundary of Sacramento-San Joaquin Delta approximately 1.5 to 2 miles upstream of the Stockton

Deep Water Ship Channel. The west-bank outfall consists of a 4-foot diameter pipe located on the west bank of the channel, while the east-bank outfall will consist of a 5-foot diameter pipe located on the east bank of the channel. The river width at the outfall locations is approximately 250 feet, and the San Joaquin River depth is approximately 15 to 16 feet at mean low tide. San Joaquin River flow is strongly tidal at the outfall, with flows moving past the outfall several times before the net San Joaquin River flow pushes the water into the Deep Water Ship Channel. South Delta water supply pumping operations affect the San Joaquin River flow at the Facility's outfall. There is a tidal flow measurement station, installed and maintained by the U.S. Geological Survey (USGS), in the San Joaquin River approximately one-half mile upstream of the Facility's east-bank outfall. Based on flow data at the USGS measurement station, the maximum tidal flow is approximately 3,000 cubic feet per second (cfs) during peak flood and ebb tides.

iii. **Dilution/Mixing Zone Study Results.** The dilution method provided in the SIP assumes a constant diluting flow in the receiving water; however, because the San Joaquin River is tidal, the flow of dilution water varies with the tidal cycle. Tidal action impacts the receiving water with multiple doses of the effluent as the San Joaquin River flows downstream past the discharge, reverses moving upstream past the discharge a second time, then again reverses direction and passes the discharge point a third time as the net flow conveys the effluent down the river. Because of the flow complexities at the discharge site, it is necessary to determine effluent dilution using numerical models of the San Joaquin River system. In the study described below, the Delta Simulation Model II (DSM2) was used.

DSM2 is a one-dimensional computer model developed by the Delta Modeling Section of California Department of Water Resources (DWR) for simulation of hydrodynamics, water quality, and particle transport in the Sacramento-San Joaquin Delta. A model grid representing the network of Delta channels was developed by DWR to cover major Delta channels, the Sacramento River upstream to the City of Sacramento, and the San Joaquin River upstream to Vernalis. DSM2 was calibrated and validated in 1997 by DWR and in 2000 by a group of agencies, water users, and stakeholders. In 2009, DSM2 was calibrated and validated again to account for morphological changes, such as the flooded Liberty Island, and bathymetry, hydrodynamic and water quality data collected after the 2000 calibration.

(a) **Bromoform, Chlorodibromomethane, and Dichlorobromomethane** Mixing Zone Studies. To support a mixing zone request for human carcinogen criteria, the Discharger submitted a mixing zone study, *"Evaluation of San Joaquin River Tidal Flow Dilution at the Stockton*

Regional Wastewater Control Facility" (Jones and Stokes, May 2005), and a human carcinogenic impact study final report, *"Stockton Regional Wastewater Control Facility Human Carcinogen Impact Study Phase 2A: Basin Plan Calculation of Additive Toxicity Ratio"* (EOA, Inc., 17 May 2006). These studies tracked tidal movement during various tidal stages, estimated the cumulative tidal flow volume that moved past the discharge, analyzed the long-term average dilution flow, and evaluated the upstream flow at Vernalis combined with the diversions in the Old River to estimate the net flows within the vicinity of the discharge.

Additionally, the Discharger submitted a dilution analysis that used measured flow data from the USGS measurement station during the period of 20 August 1995 through 30 December 2012 and DSM2 to develop an appropriate estimate of effluent dilution in the San Joaquin River due to mixing of the effluent with the receiving water.

In a technical memorandum prepared by Robertson-Bryan, Inc., dated 28 August 2015 *("Revised Dilution Credit for Trihalomethane Compounds, Stockton Regional Wastewater Control Facility"*) (RBI 2015 Study), the Discharger provided an updated dilution analysis that evaluated the long-term hydraulic dilution in the San Joaquin River and the additional dilution of chlorodibromomethane and dichlorobromomethane occurring in the river through volatilization. The RBI 2015 Study evaluated receiving water monitoring data for chlorodibromomethane and dichlorobromomethane and compared actual long-term average[1] constituent concentrations with expected modeled constituent concentrations using DSM2. The DSM2 modeling only considers the conservative transport of these constituents in the San Joaquin River (i.e., physical mixing of the effluent in the receiving water).[2] The actual concentrations were less than modeled concentrations in the receiving water. The difference between actual and modeled

[1] Long-term average concentrations are appropriate for chlorodibromomethane and dichlorobromomethane because the CTR human health criteria are based on long-term exposures (i.e., 70 years).

[2] DSM2 modeling was used to simulate Delta flows and operations for the same period in which receiving water and effluent data were available to determine expected long-term average constituent concentrations in the receiving water.

concentrations defines the additional dilution occurring as a result of volatilization.[3] The SIP does not specifically address the fate and transport of non-conservative pollutants in the mixing zone provisions. However, the SIP advises that mixing zone studies can include *"monitoring upstream and downstream of the discharge that characterize the extent of actual dilution."* [4]This type of mixing zone study would account for the fate and transport of the volatile organic compounds. Furthermore, the TSD provides water quality modelling recommendations for the development of WLA's that account for constituent loss and transformation processes (e.g., volatilization).[5] Based on the findings of these studies, there is available dilution for human carcinogen criteria.

Based on the findings of the above-cited mixing zone studies, this Order grants human carcinogen criteria mixing zones that have been used for the calculation of WQBEL's for bromoform, chlorodibromomethane, and dichlorobromomethane. The dimensions of the mixing zones and allowable dilution credits are shown in Table F-6, below. The estimated sizes of the mixing zones are based on the DSM2 modeling that evaluated the tidal movement upstream and downstream from Discharge Point 001A.

Table F-6. Maximum Allowable Human Health Criteria Mixing Zones

Pollutant	Mixing Zone Dimensions	Dilution Credit
Bromoform	0.4 miles upstream; 0.7 miles downstream	8:1 Volatilization was not considered in the dilution credit for bromoform
Chlorodibromomethane	1.4 miles upstream; 8.4 miles downstream	85:1
Dichlorobromomethane	0.4 miles upstream; 0.7 miles downstream	35:1

[3] Chlorodibromomethane and dichlorobromomethane are volatile organic compounds that are non-conservative pollutants that attenuate in the environment.

[4] SIP, section 1.4.2.1, pg. 17

[5] TSD, pgs. 83-84

iv. **Evaluation of Available Dilution for Bromoform, Chlorodibromomethane, and Dichlorobromomethane.** As discussed in section IV.C.3 of this Fact Sheet, based on existing effluent data, it appears the Facility cannot meet the end-of-pipe (no dilution) WQBEL's for bromoform, chlorodibromomethane, or dichlorobromomethane.

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

The receiving water contains assimilative capacity for bromoform, chlorodibromomethane, and dichlorobromomethane. As discussed above, the proposed human health mixing zones and associated dilution credits meet the mixing zone conditions specified in section 1.4.2.2.A of the SIP. However, an overarching mixing zone condition is 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."*

The Central Valley Water Board considered Facility performance and the receiving water's assimilative capacity for bromoform, chlorodibromomethane, and dichlorobromomethane in determining the dilution needed. The consideration of these factors is necessary to avoid allocating an unnecessarily large portion of the receiving water's assimilative capacity and possibly violating the Antidegradation Policy. Based on Facility performance for bromoform, chlorodibromomethane, and dichlorobromomethane, this Order maintains the dilution credits allowed in Order R5 2014-0070-03, which are the maximum allowable human health dilution credits of 8, 35, and 85, respectively.

In the table below the **dilution credits** are calculated using the steady-state mass balance equation rearranged to solve for the dilution credit, as follows:

$D = (ECA – C) / (C – B)$.

The **ECA** is equivalent to the performance-based AMEL or annual average effluent limitation.

Table F-7. Dilution Credits Associated with Performance-based Effluent Limitations

Pollutant	Units	ECA	Criterion	Background	Dilution Credit
Bromoform	µg/L	38	4.3	<0.033	8
Chlorodibromomethane	µg/L	29	0.41	<0.078	85
Dichlorobromomethane	µg/L	17	0.56	<0.089	35

v. **Regulatory Compliance for Dilution Credits and Mixing Zones.** To fully comply with all applicable laws, regulations and policies of the state, the Central Valley Water Board-approved mixing zones and the associated dilution credits are based on the following:

(a) Mixing zones are allowed under the SIP provided all elements contained in section 1.4.2.2 are met. 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. 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, are not at or near a drinking water intake, and do not overlap a mixing zone from a different outfall.

(d) The Central Valley Water Board is allowing mixing zones for human health constituents and has determined allowing such mixing zones will not cause acutely toxic conditions to aquatic life passing through the mixing zones.

(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 CBOD5 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 mixing zone complies with the SIP for priority pollutants.

(h) Section 1.4.2.2.B of the SIP, in part states, "The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements." The Central Valley Water Board has determined full allowance of dilution is necessary for the Discharger to achieve compliance with this Order.

(i) The Central Valley Water Board has determined the mixing zone complies with the Basin Plan for non-priority pollutants. The Basin Plan requires a mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board has considered the procedures and guidelines in section 5.1 of U.S. EPA's *Water Quality Standards Handbook*, 2nd Edition (updated July 2007) and section 2.2.2 of the TSD. The SIP incorporates the same guidelines.

(j) The Central Valley Water Board has determined that allowing dilution factors that exceed those proposed by this Order would not comply with the State Antidegradation Policy for receiving waters outside the allowable mixing zones for bromoform, chlorodibromomethane, and dichlorobromomethane. The State Antidegradation Policy incorporates the federal Antidegradation Policy and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of the State Antidegradation Policy states:

> *"Any activity which produces or may produce a waste or increased volume or concentration of waste and which dischargers or proposed to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and*

(b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

The Central Valley Water Board has determined the effluent limitations required by this Order will result in the Discharger implementing BPTC of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the state will be maintained.

Therefore, the Central Valley Water Board has determined the effluent limitations established in the Order for bromoform, chlorodibromomethane, and dichlorobromomethane, which have been adjusted for dilution credits, are appropriate and necessary to comply with the Basin Plan, SIP, federal antidegradation regulations, and the State Antidegradation Policy.

d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc, which are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default U.S. EPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. **Hardness-Dependent CTR Metals Criteria.** The CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness, the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP[6] and the CTR[7]. The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones.[8] Design flows for aquatic life criteria include the lowest 1-day flow with an average reoccurrence frequency of once in 10 years (1Q10) and the lowest average 7

[6] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[7] The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO3), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. Section 131.38(c)(4)).

[8] 40 C.F.R. Section131.3(c)(4)(ii)

consecutive day flow with an average reoccurrence frequency of once in 10 years (7Q10).[9] This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a 3-year period, on average.[10] The CTR requires that when mixing zones are allowed, the CTR criteria apply at the edge of the mixing zone; otherwise, the criteria apply throughout the water body, including at the point of discharge.[11] The CTR does not define the term "ambient," as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully comply with the CTR and SIP.

i. Summary findings
The ambient hardness for the San Joaquin River is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 27 mg/L to 223 mg/L based on collected ambient data from November 2015 through October 2018. 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 27 mg/L (minimum) up to 223 mg/L (maximum). Staff recommends that the Central Valley Water Board use the ambient hardness values shown in Table F 8 for the following reasons.

(a) Using the ambient receiving water hardness values shown in Table F-8 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.

(b) The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In

[9] 40 C.F.R. Section131.38(c)(2)(iii) Table 4

[10] 40 C.F.R. Section131.38(c)(2)(iii) Table 4, notes 1 and 2

[11] 40 C.F.R. Section131.38(c)(2)(i)

compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Central Valley Water Board staff has used the ambient hardness values shown in Table F-8 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.

(c) Using an ambient hardness that is higher than the minimum of 27 mg/L will result in limits that may allow increased metals to be discharged to the San Joaquin River, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the State Antidegradation Policy (see antidegradation findings in section IV.D.4 of the Fact Sheet). The State Antidegradation Policy requires the Discharger to meet WDR's that will result in the BPTC 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.

(d) Using the ambient hardness values shown in Table F-8 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-8. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable) (Acute)	CTR Criteria (µg/L, total recoverable) (Chronic)	Basin Plan Objective (µg/L, total recoverable) (Maximum Concentration)
Copper	104	15	9.6	10.4
Chromium III	104	1800	210	--
Cadmium	95 (acute) 1044 (chronic)	4.3	2.5	--
Lead	86	67	2.6	--
Nickel	104	490	54	--
Silver	73	2.4	--	11.8
Zinc	104	120	120	102

Table F-8 Notes:

1. **CTR Criteria (ug/L total recoverable)**. Acute and chronic numbers were rounded to two significant figures in accordance with the CTR (40 C.F.R. section 131.38(b)(2)).
2. **Ambient hardness (mg/L).** Values in Table F-8 represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1.

3. **The Basin Plan and CTR's hardness dependent metals criteria** equations vary differently depending on the metal, which results in differences in the range of ambient hardness values that may be used to develop effluent limitations that are protective of beneficial uses and comply with CTR criteria for all ambient flow conditions.

   ii. **Background**

   The State Water Board provided direction regarding the selection of hardness in two precedential water quality orders; WQO 2008-0008 for the City of Davis Wastewater Treatment Plant (Davis Order) and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant (Yuba City Order). The State Water Board recognized that the SIP and the CTR do not discuss the manner in which hardness is to be ascertained, thus regional water boards have considerable discretion in determining ambient hardness so long as the selected value is protective of water quality criteria under the given flow conditions. (Davis Order, p.10). The State Water Board explained that it is necessary that, *"The [hardness] value selected should provide protection for all times of discharge under varying hardness conditions."* (Yuba City Order, p. 8). The Davis Order also provides that, *"Regardless of the hardness used, the resulting limits must always be protective of water quality criteria under all flow conditions."* (Davis Order, p. 11)

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

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

   Where:

   H = ambient hardness (as $CaCO_3$)[12]

   WER = water-effect ratio

   m, b = metal- and criterion-specific constants

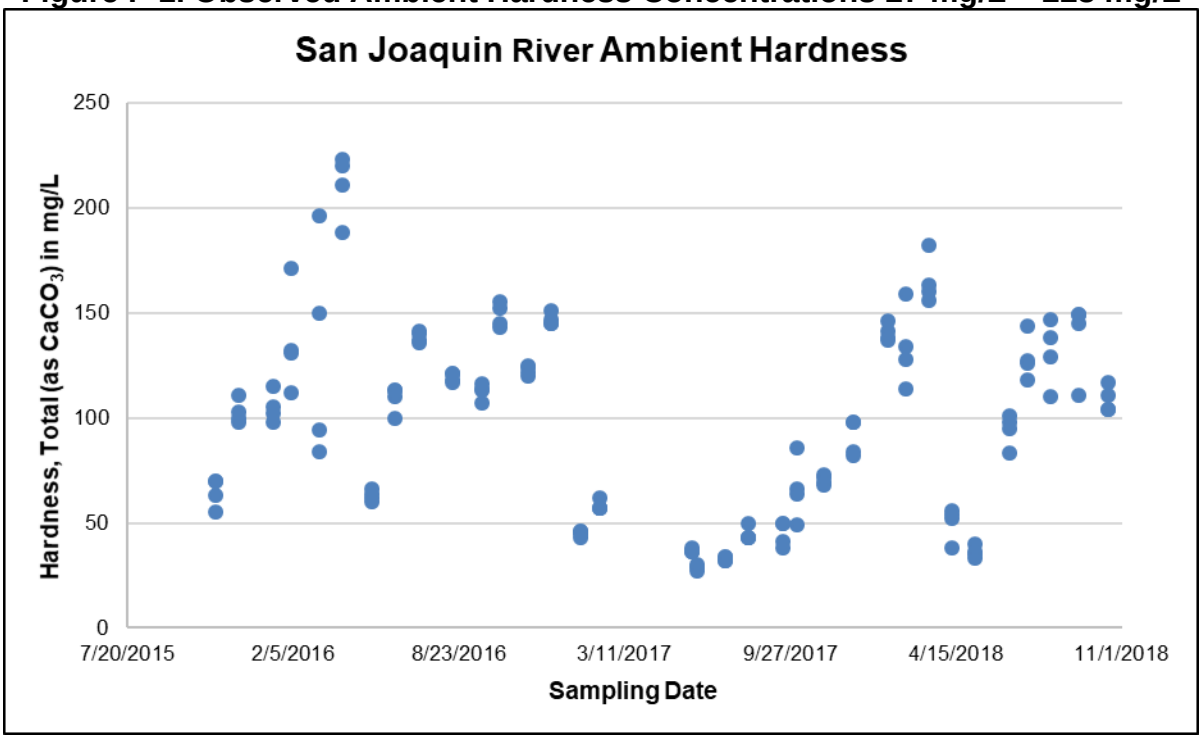
   The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected "design" hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of

[12] For this discussion, all hardness values are expressed in mg/L as CaCO3.

the applicable criteria in a 3-year period.[13] Design flows for aquatic life criteria include the 1Q10 and the 7Q10. Based on San Joaquin River flow data measured at Vernalis upstream of Discharge Point between 1990 and 2013, the 1Q10 and 7Q10 flows are 550 cfs and 600 cfs, respectively.[14],[15]

iii. **Ambient conditions**
The ambient receiving water hardness varied from 27 mg/L to 223 mg/L based on 136 samples from November 2015 through October 2018 (see Figure F 1).

Figure F-1. Observed Ambient Hardness Concentrations 27 mg/L – 223 mg/L



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

iv. **Approach to derivation of criteria**
As shown above, ambient hardness is variable. Because of the

[13] 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2.

[14] National Water Information System. USGS Stream Site 11303500 San Joaquin River near Vernalis, CA (http://waterdata.usgs.gov).

[15] Design flows estimated based on Log Pearson Type 3 Distribution with normalized data. (Hydrology and Floodplain Analysis, Second Edition, Bedient and Huber, 1992).

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

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

Reasonable worst-case ambient conditions:

- "Low receiving water flow." CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions.

- "High receiving water flow (maximum receiving water flow)." This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.

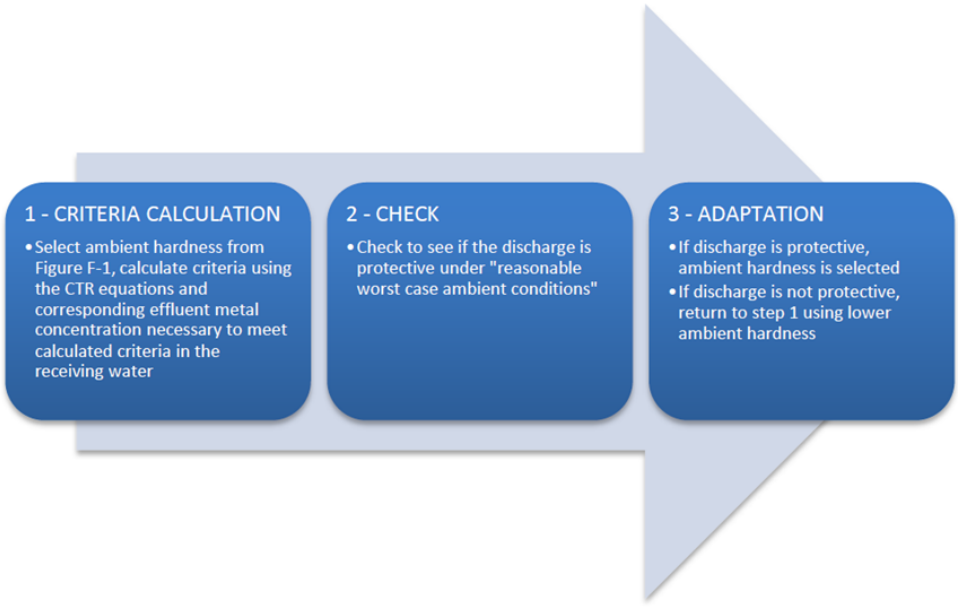
- "Low receiving water hardness." The minimum receiving water hardness condition of 27 mg/L was selected to represent the reasonable worst-case receiving water hardness.

- "Background ambient metal concentration at criteria." This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the facility's discharge). Based on data in the record, this is a design condition that does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

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

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

Figure F-1. Criteria Calculation CTR



1. CRITERIA CALCULATION. CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 223 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.[16] This should not be confused with an effluent limit. Rather, it is the Effluent Concentration Allowance (ECA), which is synonymous with the wasteload allocation defined by U.S. EPA as *"a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water."*[17] If effluent limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.

2. CHECK. U.S. EPA's simple mass balance equation[18] is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal

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

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

[18] U.S. EPA NPDES Permit Writers' Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.

3. ADAPT. If step 2 results in:

   (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.

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

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

v. **Results of iterative analysis**

The above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-8, above. Using these hardness values to calculate criteria, which are actual sample results collected in the receiving water, will result in effluent limitations that are protective under all ambient flow conditions. Copper and lead are used as examples below to illustrate the results of the analysis. Tables F-9 and F-10, below, summarize the numeric results of the three-step iterative approach for copper and lead. As shown in the example tables, ambient hardness values of 104 mg/L and 86 mg/L are used in the CTR equations to derive criteria and effluent limitations for copper and lead, respectively. Then, under the "check" step, worst-case ambient receiving water conditions are used to test whether discharge results in compliance with CTR criteria and protection of beneficial uses..

The results of the above analysis, summarized in the tables below, show that the ambient hardness values selected using the three-step iterative process result in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-9 and F-10, below, summarize the critical flow conditions; however, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

Table F-9. Verification of CTR Compliance for Copper

Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Copper Concentration (µg/L)	Complies with CTR?
1Q10	39	4.2	4.1	Yes
7Q10	38	4.1	4.0	Yes
Max receiving water flow	31	3.4	3.4	Yes

Table F-10. Verification of CTR Compliance for Lead

Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness	CTR Criteria (µg/L)	Ambient Silver Concentration (µg/L)	Complies with CTR?
1Q10	39	0.96	0.92	Yes
7Q10	38	0.94	0.90	Yes
Max receiving water flow	31	0.72	0.71	Yes

3. Determining the Need for WQBEL's

Clean Water Act section 301(b)(1)(C) requires effluent limitations necessary to meet water quality standards, and 40 C.F.R. section 122.44(d) requires NPDES permits to include conditions that are necessary to achieve water quality standards established under section 303 of the CWA, including state narrative criteria for water quality. Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) state*, "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 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 122.44(d)(1)(vii) requires effluent limits to be developed consistent with any available WLA's developed and approved for the discharge. The process to determine whether a WQBEL is required as described in 40 C.F.R. section 122.44(d)(1)(i) is referred to as an RPA. Central Valley Water Board staff conducted RPA's for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. This section includes details of the RPA's for constituents of concern for the Facility. The entire RPA is included in the administrative record and a summary of the constituents of concern is provided in Attachment G. For priority pollutants, the SIP dictates the procedures for conducting the RPA. For non-priority pollutants the Central Valley Water Board is not restricted to one particular RPA method; therefore, the RPA's have been conducted based on U.S. EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

a. **Constituents with Total Maximum Daily 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 wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to [Total Maximum Daily Loads regulations]." U.S. EPA construes 40 C.F.R. section 122.44(d)(1)(vii)(B) to mean that "when 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 San Joaquin River is subject to TMDL's for dissolved oxygen, and 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. **Dissolved Oxygen**

(a) **WQO.** The Basin Plan contains a numeric site-specific water quality objective for the Sacramento-San Joaquin Delta, which requires that dissolved oxygen concentrations in the San Joaquin River from Turner Cut to Stockton shall not be reduced below 6.0 mg/L from 1 September through 30 November and 5.0 mg/L throughout the remainder of the year.

(b) **RPA Results.** The Discharger reported 1,420 average daily effluent dissolved oxygen results from November 2015 through October 2018, of which all samples were above the Basin Plan site-specific objectives of 5.0 mg/L and 6.0 mg/L.

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. Dissolved oxygen 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.*" 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)

As described in section II.E of this Fact Sheet, the Discharger is in the process of completing Facility upgrades and the modified treatment processes have the potential to impact dissolved oxygen concentrations in the effluent. Additionally, the San Joaquin River, at times, continues to exceed the site-specific Basin Plan water quality objectives.

Resolution R5-2005-0005 was adopted by the Central Valley Water Board on 27 January 2005, and approved by the U.S. EPA on 7 February 2007, establishing the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel Portion of the San Joaquin River (Control Program), and is applicable to the Facility's discharge. Order R5-2014-0070-03 included a minimum daily average effluent limitation for dissolved oxygen of 6.0 mg/L from 1 September through 30 November and 5.0 mg/L throughout the remainder of the year. Although all effluent dissolved oxygen samples collected from November 2015 through October 2018 were in compliance with the site-specific Basin Plan water quality objectives, the Discharger is in the process of completing Facility upgrades that may impact dissolved oxygen concentrations in the Facility's effluent and the receiving water, at times, continues to exceed the water quality objectives. In implementing its discretion, the Central

Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the insufficient data. Therefore, in accordance with the Control Program, this Order retains the effluent limitations for dissolved oxygen from Order R5-2014-0070-03.

(c) **Plant Performance and Attainability.** Dissolved oxygen was detected consistently above the Basin Plan site-specific objectives of 5.0 mg/L and 6.0 mg/L. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Diazinon and Chlorpyrifos**

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

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

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

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

Where:

CD = diazinon concentration in µg/L of point source discharge for WLA.

CC = chlorpyrifos concentration in µg/L of point source discharge for the WLA…

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 A of the Diazinon and Chlorpyrifos TMDL lists waterways subject to the TMDL and includes the San Joaquin River.

(b) **RPA Results.** Diazinon was not detected in the effluent based on six samples collected between November 2015 and October 2018. Upstream receiving water monitoring data for diazinon is not available.

Chlorpyrifos was not detected in the effluent based on six samples collected between November 2015 and October 2018. Upstream receiving water monitoring data for chlorpyrifos is not available.

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

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

Average Monthly Effluent Limitation (AMEL)

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

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)

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

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.** Diazinon and chlorpyrifos were not detected in the effluent. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **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 13 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 San Joaquin 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 3.8 ng/L based on 36 samples collected between November 2015 and October 2018. The maximum observed upstream receiving water mercury concentration was 2.34 ng/L based on one sample collected between November 2015 and October 2018.

The MEC for methylmercury was 0.358 ng/L based on 36 samples collected between November 2015 and October 2018. Upstream receiving water monitoring data for methylmercury is not available.

(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 13 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.b of this Order. The final WQBEL's for methylmercury are effective 31 December 2030.

b. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an in-stream excursion of an applicable water quality objective; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. This section only provides the rationale for the RPA's for the

following constituents of concern that were found to have no reasonable potential after assessment of the data:

i. **Lead**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. 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 lead in the effluent are 67 µg/L and 2.6 µg/L, respectively, as total recoverable.

(b) **RPA Results.** Out of six lead samples collected between November 2015 and October 2018, one result is greater than the CTR chronic criterion. The Discharger collected an effluent lead sample on 6 June 2017 that returned a result of 2.66 µg/L. The maximum observed receiving water lead concentration was 0.517 µg/L based on one sample collected between November 2015 and October 2018.

Central Valley Water Board staff requested laboratory reports corresponding to the 6 June 2017 effluent lead sample in order to investigate possible quality assurance (QA) issues. According to the laboratory reports, the lead sample collected on 6 June 2017 was flagged for a QA issue based on a discrepancy between the relative percent difference in the matrix spike and matrix spike duplicate.

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."* Based on the laboratory reports corresponding to the 6 June 2017 effluent lead sample, laboratory QA issues may have impacted the documented result. Therefore, the Central Valley Water Board concludes that the effluent lead sample collected on 6 June 2017 is insufficient for use in the RPA. The MEC for lead without considering the unrepresentative data point is 0.316 µg/L.

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 lead will be required bi-monthly (i.e., every other month) for one year, beginning October 2020, as part of the effluent and receiving water characterization. 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.

ii. **Zinc**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. These criteria for zinc 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 zinc in the effluent are 120 µg/L, as total recoverable.

The Basin Plan includes a site-specific objective for the Sacramento-San Joaquin Delta of 100 µg/L (dissolved) as a maximum concentration. Using the default U.S. EPA translator, the Basin Plan objective for zinc is 102 µg/L (total recoverable).

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.

(b) **RPA Results.** The MEC for zinc was 15.2 µg/L, based on six samples collected from November 2015 through October 2018. The Discharger collected one upstream receiving water sample for zinc on 8 August 2017 that returned a result of 118 µg/L, which exceeds the Basin Plan site-specific objective of 102 µg/L.

For comparison to the 8 August 2017 upstream receiving water zinc result, the Central Valley Water Board evaluated sampling results from the City of Manteca Water Quality Control Facility’s (WQCF) upstream monitoring location, which is located approximately 6.5 miles upstream of the Facility. The City of Manteca collected an upstream receiving water zinc sample on 8 August 2017 that returned a result of 3.0 µg/L. The City of Manteca WQCF is the only known source of zinc between their upstream monitoring location and the Discharger’s Monitoring Location RSW-001. Furthermore, an effluent sample collected by the City of Manteca WQCF on 8 August 2017 returned a result of 41 µg/L.

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." Based on a comparison of the Discharger's 8 August 2017 upstream receiving water sampling result for zinc with receiving water sampling data collected at the City of Manteca WQCF, the Central Valley Water Board concludes that the sample collected by the Discharger at Monitoring Location RSW-001 on 8 August 2017 is not representative of typical receiving water conditions and is insufficient for use in the RPA.

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 zinc will be required bi-monthly (i.e., every other month) for one year, beginning October 2020, as part of the effluent and receiving water characterization. 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 in-stream excursion above a water quality standard for ammonia, bromoform, CBOD5, chlorine residual, chlorodibromomethane, dichlorobromomethane, electrical conductivity, nitrate plus nitrite, pH, temperature, total coliform organisms, and TSS. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. Ammonia

(a) **WQO.** The 1999 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1 hour average; criteria maximum concentration or CMC) standards based on pH 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.

U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the "2013 Criteria"). The 2013 Criteria is an update to U.S. EPA's 1999 Criteria and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species tested for development of the 2013 Criteria may not be present in some Central Valley

waterways. The 2013 Criteria document therefore states that, *"unionid mussel species are not prevalent in some waters, such as the arid west …"* and provides that*, "In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria data set to better represent the species present at the site."*

The Central Valley Water Board issued a 3 April 2014 California Water Code section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger participated in the Central Valley Clean Water Association (CVCWA) Freshwater Collaborative Mussel Study. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan's narrative toxicity objective. The 1999 Criteria recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH 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. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the San Joaquin River has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum daily average effluent pH observed between November 2015 and October 2018 was 7.7. In order to protect against the worst-case short-term exposure of an organism, a pH value of 7.7 was used to derive the acute criterion. The resulting acute criterion is 9.64 mg/L.

A chronic criterion was calculated for each day when paired pH and temperature data were measured using downstream receiving water data for pH and temperature. Rolling 30-day average criteria were calculated from downstream receiving water data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The most stringent 30-day CCC was 2.30 mg/L (as N). The 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 2.30 mg/L (as N), the 4-day average concentration that should not be exceeded is 5.76 mg/L (as N).

(b) **RPA Results**. The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that are harmful to aquatic life and exceed the Basin Plan narrative toxicity objective. 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. Ammonia 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." 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)

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan's narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBEL's are required.

(c) **WQBEL's**. 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 long-term average discharge condition (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 and specifies that *"…the value of "n" (assumed monitoring frequency) used in the AML calculation should not be less than the averaging period upon which the criterion value is based"*. Therefore, while the LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA and AMEL multiplier corresponding to the 30 day CCC were calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30. The lowest LTA representing the acute, 4 day CCC, and 30-day CCC is then selected for deriving the AMEL and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculations for ammonia was performed according to the SIP procedures, which also allow for the consideration of seasonal effluent limitations.

The ammonia criteria are dependent on pH and temperature, so the criteria can vary seasonally (e.g., are typically more stringent in warmer months and less stringent in cooler months). Therefore, since the nitrification process at the Facility is not as efficient during

cooler periods, seasonal effluent limits were considered for the discharge.

The resulting seasonal AMEL's of 2.2 mg/L from 1 April through 31 October and 3.9 mg/L from 1 November through 30 November and 1 December through 31 March were calculated using the 1999 Criteria based on the 30-day CCC and effluent ammonia data collected from November 2015 through October 2018. The resulting seasonal AMEL's are less stringent than the seasonal AMEL's of 1.2 mg/L, 2.3 mg/L, and 2.4 mg/L from 1 April through 31 October, 1 November through 30 November, and 1 December through 31 March, respectively, established in Order R5-2014-0070-03. Therefore, considering the ammonia criteria based on updated pH and temperature, the existing effluent limitations are protective and are being carried forward from the previous Order. In accordance with 40 C.F.R. section 122.45(d), which requires AMEL's and AWEL's for POTW's unless impracticable, this Order replaces the seasonal MDEL's with AWEL's of 3.2 mg/L, 7.5 mg/L, and 7.6 mg/L from 1 April through 31 October, 1 November through 30 November, and 1 December through 31 March, respectively.

(d) **Plant Performance and Attainability**. The Facility is designed to provide tertiary treatment and fully nitrify the wastewater. Therefore, the Central Valley Water Board finds that immediate compliance with the ammonia limits is feasible.

ii. **Bromoform**

(a) **WQO.** The CTR includes a criterion of 4.3 µg/L for bromform for the protection of human health for waters from which both water and organisms are consumed. Order R5 2014 0070-03 included effluent limitations for bromoform based on the CTR human health criterion.

(b) **RPA Results.** The MEC for bromoform was 9.79 µg/L based on 37 samples collected from November 2015 through October 2018. Bromoform was not detected in the upstream receiving water based on one sample collected from November 2015 through October 2018. Therefore, bromoform 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 bromoform; therefore, as discussed in section IV.C.2.c, a human health dilution credit of 8:1 was allowed in the development of WQBEL's for bromoform. Based on the allowable dilution credit, this Order contains an AMEL of 38 µg/L and an MDEL of 110 µg/L for bromoform based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent bromoform data shows that the MEC of 9.79 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Chlorine Residual**

(a) **WQO.** U.S. EPA developed NAWQC for the 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's 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, 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. 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 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)

The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. Although the Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to the San Joaquin 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.** The TSD contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to AMEL's and MDEL's 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 the protection of aquatic life.

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

iv. **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 2014 0070-03 included effluent limitations for chlorodibromomethane based on the CTR human health criterion.

(b) **RPA Results.** The MEC for chlorodibromomethane was 15.59 µg/L based on 37 samples collected from November 2015 through October 2018. Chlorodibromomethane was not detected in the upstream receiving water based on one sample collected from November 2015 through October 2018. 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 in section IV.C.2.c, a human health dilution credit of 85:1 was allowed in the development of WQBEL's for chlorodibromomethane. Based on the allowable dilution credit, this Order contains an AMEL of 29 µg/L and an MDEL of 75 µg/L for chlorodibromomethane based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability**. Analysis of the effluent chlorodibromomethane data shows that the MEC of 15.59 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. **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 2014 0070-03 included effluent limitations for dichlorobromomethane based on the CTR human health criterion.

(b) **RPA Results.** The MEC for dichlorobromomethane was 11.64 µg/L based on 37 samples collected from November 2015 through October 2018. Dichlorobromomethane was not detected in the upstream receiving water based on one sample collected from November 2015 through October 2018. 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 in section IV.C.2.c, a human health dilution credit of 35:1 was allowed in the development of WQBEL's for dichlorobromomethane. Based on the allowable dilution credit, this Order contains an AMEL of 17 µg/L and an MDEL of 34 µg/L for dichlorobromomethane based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent dichlorobromomethane data shows that the MEC of 11.64 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. **Nitrate and Nitrite**

(a) **WQO.** DDW has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 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 mg/L for nitrite (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).

(b) **RPA Results.** The maximum observed nitrate and nitrite concentrations in the effluent were 29 mg/L and 0.32 mg/L, respectively. No upstream receiving water monitoring data for nitrate or nitrite was available. Therefore, nitrate in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

(c) **WQBEL's.** This Order contains an AMEL and AWEL for nitrate plus nitrite, as a single parameter, of 10 mg/L and 14 mg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use.

(d) **Plant Performance and Attainability.** Analysis of the effluent data for nitrate plus nitrite shows that the MEC of 29 mg/L is greater than the applicable WQBEL's. The Discharger submitted a 25 March 2014 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for nitrate plus nitrite and Order R5-2014-0070-03 included a compliance schedule for the Discharger to achieve compliance with the final effluent limits by 1 June 2024. As discussed in section IV.E.3 of this Fact Sheet, this Order retains the compliance schedule established in Order R5-2014-0070-03 and requires the Discharger to achieve compliance with final effluent limitations for nitrate plus nitrite by 1 June 2024.

vii. **Pathogens**

(a) **WQO.** DDW has developed reclamation criteria, CCR, Title 22, 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 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, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities."* Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 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. Reasonable potential for pathogens therefore exists 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, 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. Pathogens 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 these non-priority pollutant constituents.

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 beneficial uses of the San Joaquin River include MUN, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. 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 WQBEL's are required.

(c) **WQBEL's.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 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 as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily 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 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, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

This Order contains effluent limitations for CBOD5, 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.

This Order contains effluent limitations for CBOD5, 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 CBOD5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. CBOD5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for CBOD5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily CBOD5 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 CBOD5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's and AWEL's for CBOD5 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.** The Facility provides tertiary treatment and utilizes a chlorine disinfection system that is designed to achieve Title 22 criteria. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible for tertiary treated discharges from the Facility.

viii. **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. Therefore, reasonable potential exists for pH 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. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has

used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Based on 2,160 samples taken from November 2015 through October 2018, the maximum instantaneous pH reported was 8.2 and the minimum instantaneous pH was 6.5. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBEL's for pH are required in this Order.

(c) **WQBEL's.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.

(d) **Plant Performance and Attainability.** Analysis of effluent pH data shows that immediate compliance with the WQBEL's is feasible.

ix. **Temperature**

(a) **WQO.** The Thermal Plan requires that, "The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F."

(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.** To ensure compliance with the Thermal Plan, an effluent limitation for temperature is included in this Order.

(d) **Plant Performance and Attainability.** Monitoring data indicates that consistent compliance with the requirements of the Thermal Plan is feasible.

x. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituents objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA NAWQC for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. The Bay-Delta Plan includes numeric water quality criteria for the protection of agricultural and MUN beneficial uses.

Table F-11. Salinity Water Quality Criteria/Objectives

Parameters	Bay-Delta Plan WQO	Secondary MCL	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	159	170
EC (µmhos/cm) or TDS (mg/L)	EC 700 April - August EC 1,000 September - March	EC 900, 1,600, 2,200 or TDS 500, 1,000, 1,500	N/A	EC 1,025 or TDS 633	EC 1,162 or TDS 710
Sulfate (mg/L)	N/A	250, 500, 600	N/A	64	70

Table F-11 Notes:

1. **Secondary MCL.** Secondary MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.

2. **Bay-Delta Plan WQO.** The applicable water quality objective for salinity expressed as EC or TDS is the Bay-Delta Plan Southern Delta salinity objectives of 1,000 µmhos/cm, applied as a 30-day running average of mean daily electrical conductivity.

   (1) **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. The NAWQC acute criterion for the protection of freshwater aquatic life for chloride is 860 mg/L and the chronic criterion is 230 mg/L.

   (2) **Electrical Conductivity (EC) or Total Dissolved Solids (TDS).** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and

2,200 µmhos/cm as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum.

The applicable water quality objective for salinity expressed as EC or TDS is the Bay-Delta Plan Southern Delta salinity objectives of 14-day running average EC of 700 µmhos/cm from 1 April – 31 August and a 14-day running average EC of 1,000 µmhos/cm from 1 September – 31 March. (see Table F-11 above).

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

(b) **RPA Results.**

(1) **Chloride.** Chloride concentrations in the effluent ranged from 152 mg/L to 170 mg/L, with a maximum annual average of 159 mg/L, based on six samples collected between November 2015 and October 2018. The maximum annual average does not exceed the Secondary MCL recommended level and the maximum effluent chloride concentration does not exceed the U.S. EPA NAWQC for the protection of freshwater aquatic life. Upstream receiving water monitoring data for chloride is not available.

(2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's effluent data shows a maximum observed annual average EC of 1,025 µmhos/cm, with a range from 824 µmhos/cm to 1,162 µmhos/cm. The maximum observed receiving water EC was 1,068 µmhos/cm based on 60 samples collected at Monitoring Location RSW-001 between November 2015 and October 2018.

TDS concentrations in the effluent ranged from 510 mg/L to 710 mg/L, with a maximum annual average of 633 mg/L based on 36 samples collected between November 2015 and October 2018. Upstream receiving water monitoring data for TDS is not available.

Based on this data the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Bay-Delta Plan objective. Therefore, WQBELs are required for EC.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 54.2 mg/L to 70 mg/L, with a maximum annual average of 64

mg/L based on six samples collected between November 2015 and October 2018. These levels do not exceed the Secondary MCL recommended level. Upstream receiving water monitoring data for sulfate is not available.

(c) **WQBEL's.** In the Bay-Delta Plan the State Water Board acknowledges that compliance with the Southern Delta salinity objectives must be met primarily through regulation of flow and that POTW discharges have minimal effect on salinity levels. The State Water Board acknowledges further that in most, if not all, cases, compliance with "traditional" numeric water quality-based effluent limitations based on the Southern Delta salinity objectives may be infeasible for POTWs. Therefore, Chapter VI Section B.1.vii of the Bay-Delta Plan provides a Program of Implementation for POTWs, which states, in part, the following:

"… In cases where it is infeasible, the Central Valley Regional Water Board shall include in NPDES permits the following types of enforceable effluent limitations:

(a) A performance-based effluent limitation derived using, at a minimum, the past three years of effluent data and one that considers the potential for drought conditions, changing water sources, and water conservation.

(b) Best management practices, including but not limited to: (A) an industrial pretreatment program, implemented through local ordinances, that minimizes salinity inputs from all industrial sources of salinity within the POTW's collection system; (B) source control measures, such as reducing salinity concentrations in source water supplies; (C) actions to limit or ban the use of residential self-generating water softeners; (D) a salinity education and outreach program; and (E) ongoing participation in the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS)."

Where it is infeasible for a POTW to comply with "traditional" numeric water quality-based effluent limitations, Chapter VI Section B.1.vii of the Bay-Delta Plan includes information the Discharger must submit to demonstrate the need for alternative effluent limitations. The following includes the Bay-Delta Plan application requirement in quotes followed by a description of the Discharger's submittal:

"(a) An evaluation of whether technological or economic changes have made previously deemed infeasible upgrades to control salinity in the POTW's effluent feasible."

The only treatment process that is commonly used to treat dissolved solids is reverse osmosis. The State Water Board

acknowledges in the Bay-Delta Plan that reverse-osmosis treatment for the Discharger's effluent is currently not a feasible technology for the purpose of controlling salinity in the southern Delta.

> "(b) A survey of industrial sources of salinity regulated by the industrial pretreatment program, along with all annual reports submitted pursuant to that program documenting the implementation of salinity management strategies at the industrial facility within the collection system area."

The Discharger provides discharge permits through its industrial pretreatment program to regulate and control salinity, and other constituents, in the wastewater from industrial and/or nondomestic dischargers in its collection system area. The Discharger currently permits a total of 53 permitted Significant Industrial Users (SIUs), 32 of which are required to monitor for TDS in their discharges. The Discharger regulates the discharge of TDS from 6 SIUs through the inclusion of TDS limits in their discharge permits. This Order requires the Discharger salinity best management practices plan to develop actions to reduce salinity to the maximum extent practicable in an effort to comply with the Southern Delta salinity water quality objectives.

> "(c) Documentation of source control measures taken. If alternative lower-salinity source water supplies were available but not utilized, a justification for not using such supplies shall be provided."

The Discharger's water supply consists of groundwater wells, surface water from the Delta Water Supply Project treated at the Discharger's Delta Water Treatment Plant, surface water from the Mokelumne River purchased from Woodbridge Irrigation District treated at the Delta Water Treatment Plant, and treated surface water from the Stanislaus and Calaveras rivers purchased from Stockton East Water District. The water supply is serviced to North Stockton and South Stockton. Water service to Central Stockton is provided by California Water Service, which provides groundwater from its own wells and surface water from Stockton East Water District.

The Discharger started operating the Delta Water Supply Project in May 2012 as a new supplemental water supply for the City of Stockton Metropolitan Area. The Delta Water Supply Project is being used conjunctively with local groundwater resources and other existing surface water supplies to meet the City of Stockton Metropolitan Area's water demands. In 2014, surface water supplies, which have a lower total dissolved solids and electrical conductivity than groundwater supplies, comprised 72% of the Discharger's water supply. Thus, the Discharger is currently relying

primarily on a relatively low salinity water supply and no other source control methods related to water supply are proposed.

> "(d) An evaluation of the efficacy of actions taken to limit or ban the use of residential self-generating water softeners or to impose efficiency standards on water softeners within the POTW's collection system area. This evaluation shall include the estimated number of such water softeners in the POTW's collection system area. If a ban against the use of self-generating water softeners is not instituted, a justification why a ban is not feasible."

The Discharger has not conducted an extensive survey of the service area, but based on local knowledge and anecdotal evidence estimates that less than 1 percent of the approximately 91,000 connections in the service area have self-regenerating water softeners. This Order requires the Discharger to conduct a more robust assessment of the service area to determine if self-regenerating water softeners are a significant source of salinity and whether instituting a ban in accordance with Water Code Section 13148(e) will contribute to the achievement of water quality objectives. The Discharger will submit an updated independent study of discharges from all sources of salinity, including the quantity of the total discharges and preventative measures, within their progress report on salinity pollution minimization activities as required in section VI.C.3.b of the WDRs of this Order.

This Order retains the performance-based annual average effluent limitation of 1,300 µmhos/cm for EC from Order R5-2014-0070-03. The established effluent limit is based on current treatment plant performance within the past three years of effluent data that considers the potential for drought conditions, changing source waters, water conservation, and measures that will ensure that the mass loading of salinity does not increase. This Order also requires the Discharger to implement best management practices to reduce the salinity in its discharge to the San Joaquin River. Specifically, the Special Provision contained in section VI.C.3.b of this Order requires the Discharger to submit best management practices plan for salinity in accordance with the Bay-Delta Plan, including evaluation of measures to reduce salinity in source water supplies, actions to limit or ban use of residential self-regenerating water softeners, and implementation of a salinity education and outreach program.

(d) **Plant Performance and Attainability.** Analysis of the effluent data for electrical conductivity shows that consistent compliance with the performance-based annual average of 1,300 µmhos/cm and implementation of best management practice to reduce salinity is feasible.

4. WQBEL Calculations

(a) This Order includes WQBEL's for ammonia, bromoform, CBOD5, chlorine residual, chlorodibromomethane, chlorpyrifos, diazinon, dichlorobromomethane, dissolved oxygen, electrical conductivity, methylmercury, nitrate plus nitrite, pH, temperature, total coliform organisms, and TSS. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

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

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 MCL's 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 MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the LTA equal to the secondary MCL and using the AMEL multiplier to set the AMEL. The 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 WQBEL's are calculated in accordance with section 1.4 of the SIP. The ECA's are converted to equivalent LTA's (i.e., LTAacute and LTAchronic) using statistical multipliers and the lowest LTA

is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBEL's 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 WQBEL's are calculated in accordance with section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP. For non-priority pollutants with human health criteria, WQBEL's are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$AMEL = mult_{AMEL}[\min(\underbrace{M_A ECA_{acute}}_{LTA_{acute}}, M_C ECA_{chronic})]$$

$$MDEL = mult_{MDEL}[\min(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}})]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

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 $LTA_{chronic}$

Summary of Water Quality-Based Effluent Limitations
Discharge Point No. 001A and Discharge Point No. 001B
Table F-12. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	
Bromoform	µg/L	38	--	110
Ammonia Nitrogen, Total (as N)	mg/L (see table note 1. below)	1.2	3.2	--

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Ammonia Nitrogen, Total (as N)	mg/L (see table note 2. below)	2.3	7.5	--
Ammonia Nitrogen, Total (as N)	mg/L (see table note 3. below)	2.4	7.6	--
Ammonia Nitrogen, Total (as N)	lbs/day (see table notes 1. and 4. below)	550	1,500	--
Ammonia Nitrogen, Total (as N)	lbs/day (see table notes 2. and 4. below)	1100	3,400	--
Ammonia Nitrogen, Total (as N)	lbs/day (see table notes 3. and 4. below)	1100	3,500	--
Chlorine, Total Residual	mg/L	--	0.011 (see table note 5. below)	0.019 (see table note 6. below)
Chlorpyrifos	µg/L	(see table note 7. below)	(see table note 8. below)	--
Diazinon	µg/L	(see table note 7. below)	(see table note 8. below)	--
Dissolved Oxygen	mg/L (see table note 9. below)	--	--	6.0
Dissolved Oxygen	mg/L (see table note 10. below)	--	--	5.0
Electrical Conductivity @ 25°C	µmhos/cm	1,300 (see table note 11. below)	--	--
Methylmercury	grams/year	13 (see table note 12. below)	--	--
Nitrate Plus Nitrite, Total (as N)	mg/L	10	14	--

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Temperature	°F	--	(see table note 13. below)	
Chlorodibromomethane	µg/L	29 (see table note 14 below)	--	75
Dichlorobromomethane	µg/L	17 (see table note 14 below)	--	34

a. **pH:**

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

ii. 8.5 SU as an instantaneous maximum.

b. **Total Coliform Organisms:** Effluent total coliform organisms shall not exceed the following with compliance measured immediately after disinfection:

i. 2.2 most probable number per 100 milliliter (MPN/100 mL), as a 7-day median.

ii. 23 MPN/100 mL, more than once in any 30-day period; and

iii. 240 MPN/100 mL, at any time.

Table F-12 Notes:

1. Effluent limitations applicable from 1 April through 31 October.
2. Effluent limitations applicable from 1 November through 30 November.
3. Effluent limitations applicable from 1 December through 31 March.
4. Based on an average dry weather flow of 55 MGD.
5. Applied as a 4-day average effluent limitation.
6. Applied as a 1-hour average effluent limitation.
7. Average Monthly Effluent Limitation (AMEL)
   S(AMEL) = Cd (M-avg)/0.079+ Cc (M-avg)/0.012≤ 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
8. Average Weekly Effluent Limitation (AWEL)
   S(AWEL) = Cd (W-avg)/0.079+ Cc (W-avg)/0.012≤ 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

9. Effluent limitations applicable from 1 September through 30 November.
10. Effluent limitations applicable from 1 December through 31 August.
11. Applied as an annual average effluent limitation.
12. The effluent calendar year annual methylmercury load shall not exceed 13 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.
13. The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
14. Effluent limitations applicable when discharge occurs at west-bank outfall (DIS-001A)

5. Whole Effluent Toxicity (WET)

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

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

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute WET 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 WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)."* Although the discharge has been consistently in compliance with the acute WET effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Therefore, acute toxicity

effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance," dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, *"In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Consistent with Order R5-2014-0070-03, effluent limitations for acute toxicity have been included in this Order as follows:

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

70%, minimum for any one bioassay; and

90%, median for any three consecutive bioassays.

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life" (Basin Plan at section 3.1.20). Table F-13, below, includes chronic WET testing performed by the Discharger from November 2015 through October 2018. This data was used to determine if the discharge at Discharge Point 001 has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Table F-13. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow Pimephales promelas Survival (TUc)	Fathead Minnow Pimephales promelas Growth (TUc)	Water Flea Ceriodaphnia dubia Survival (TUc)	Water Flea Ceriodaphnia dubia Growth (TUc)	Green Algae Selenastrum capricornutum Growth (TUc)
3 November 2015	1	1	1	1	1
8 March 2016 (see table note 1. below)	1	1	1	>1	1

Date	Fathead Minnow Pimephales promelas Survival (TUc)	Fathead Minnow Pimephales promelas Growth (TUc)	Water Flea Ceriodaphnia dubia Survival (TUc)	Water Flea Ceriodaphnia dubia Growth (TUc)	Green Algae Selenastrum capricornutum Growth (TUc)
8 March 2016 (see table note 2. below)	--	--	1	>1	--
8 March 2016 (see table notes 1. and 3. below)	1	1	1	1	1
8 March 2016 (see table notes 2. and 3. below)	--	--	1	1	--
12 April 2016	--	--	1	1	--
26 April 2016	--	--	1	1	--
10 May 2016	--	--	1	1	--
17 May 2016 (see table note 3. below)	1	1	--	--	1
17 May 2016	1	1	--	--	1
24 May 2016	--	--	1	1	--
9 August 2016	--	--	1	>1	--
9 August 2016 (see table note 3. below)	1	1	1	>1	1
20 September 2016	--	--	1	>1	--
25 October 2016	--	--	1	>1	--
15 November 2016	--	--	1	1	--
15 November 2016 (see table note 4. below)	--	--	1	1	--
6 December 2016	1	1	--	--	1
16 January 2017	--	--	1	1	--
31 January 2017	--	--	1	1	--
14 March 2017	1	1	--	--	1
11 April 2017	1	1	1	>1	1
2 May 2017	--	--	1	1	--
20 June 2017	--	--	1	1	--
25 July 2017	--	--	1	1	--
8 August 2017	1	1	1	2	1
22 August 2017	--	--	1	>8	--

Date	Fathead Minnow Pimephales promelas Survival (TUc)	Fathead Minnow Pimephales promelas Growth (TUc)	Water Flea Ceriodaphnia dubia Survival (TUc)	Water Flea Ceriodaphnia dubia Growth (TUc)	Green Algae Selenastrum capricornutum Growth (TUc)
31 August 2017	--	--	1	1	--
12 September 2017	--	--	1	1	--
10 October 2017	--	--	1	4	--
10 October 2017 (see table note 5. below)	--	--	--	1	--
24 October 2017	1	1	1	1	1
7 November 2017	--	--	1	1	--
28 November 2017	--	--	1	1	--
13 March 2018	1	1	1	1	1
10 April 2018	--	--	1	>1	--
12 June 2018	1	1	--	--	1
18 September 2018	1	1	1	1	1

Table F-13 Notes:

1. C. dubia tests excluding outliers.
2. C. dubia tests including outliers.
3. Tests conducted using receiving water as control.
4. C. dubia tests conducted using DAF effluent to determine if disinfection process was contributing to observed toxicity.
5. C. dubia tests conducted using amended with a carbon (C8) solid phase extraction (SPE) column for pesticide removal

i. **RPA.** No dilution has been granted for chronic WET. Chronic toxicity testing results exceeding 1.3 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between November 2015 and October 2018, the maximum chronic toxicity result was >8 TUc on 22 August 2017 with a percent effect of 53 percent.

The Discharger initiated a Toxicity Reduction Evaluation (TRE) during the term of Order R5-2014-0070-03. The TRE is ongoing; however, on 10 October 2017, the Discharger conducted a targeted toxicity identification evaluation (TIE) to determine if pesticide applications to the oxidation pond and treatment wetlands were contributing to the

observed toxicity. Unamended effluent samples were collected the same week as application of pyrethrins for vector control. One sample was amended with a C8 SPE column for pesticide removal. The SPE treatment reduced toxicity from 4 TUc in the unamended sample to 1 TUc in the SPE-treated sample, indicating that pesticides were causing toxicity. In the ROWD, the Discharger indicated that pesticide application is essential for mosquito abatement in the oxidation pond and treatment wetlands. Therefore, considering the continued application of pesticides for vector control at the Facility, the Central Valley Water Board finds the discharge has reasonable potential to cause or contribute to an in-stream exceedance of the Basin Plan's narrative toxicity objective.

ii. **WQBELs.** The effluent chronic toxicity shall not exceed 1.3 TUc (as 100/EC25) AND a percent effect of 25 percent at 100 percent effluent, for any endpoint as the median of up to three consecutive chronic toxicity tests within a 6-week period. Per the compliance schedule described in section VI.C.7.a of the Order, these final effluent limits are effective 1 April 2025. The State Water Board is developing new statewide toxicity provisions through the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California that will be applicable to the Discharger. Upon the effective date of the Water Quality Control Plan, the Central Valley Water Board intends to reopen this Order to incorporate the new toxicity provisions. It is expected the new Statewide toxicity provisions will be effective prior to implementation of the final WQBEL's for chronic WET in this Order.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

Mass-based effluent limitations have been established in this Order for ammonia because it is an oxygen-demanding substance. In addition, mass-based limits for methylmercury have been established in this Order in accordance with the Delta Methylmercury Control Program. Except for the pollutants listed above, mass-based effluent limitations are not included in this

Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations were calculated based upon the design flow (Average Dry Weather Flow) permitted in Prohibition III.E of this Order.

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 bromoform, chlorodibromomethane, and dichlorobromomethane, AWEL's have been replaced with MDEL's in accordance with section 1.4 of the SIP. Furthermore, for pH, chlorine residual, dissolved oxygen, 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).

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2014-0070-03, with the exception of effluent limitations for CBOD5 and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5 2014 0070-03. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent *WQBEL's "except in compliance with section 303(d)(4).*" CWA section 303(d)(4) has two parts: paragraph (A) which applies to non-attainment waters and paragraph (B) which applies to attainment waters.

   i. For waters where standards are not attained, CWA section 303(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised

effluent limits based on such TMDL's or WLAs will assure the attainment of such water quality standards.

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

The San Joaquin River is considered an attainment water for $CBOD_5$ and TSS because the receiving water is not listed as impaired on the 303(d) list for this constituent.[19] As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the effluent limitations for $CBOD_5$ and TSS from Order R5 2014 0070-03 meets the exception in CWA section 303(d)(4)(B).

b. **Flow.** Order R5 2014-0070-03 included flow as an effluent limit based on the Facility design flow. Compliance with the effluent limits for flow in Order R5 2014 0070-03 was calculated annually based on the average daily flow collected over three consecutive dry weather months. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

4. Antidegradation Policies

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

a. **Surface Water.** This Order removes MDEL's and mass-based effluent limitations for CBOD5 and TSS based on 40 C.F.R part 122.45(d) and (f), and as described further in section IV.D.3 of this Fact Sheet. The removal

[19] "The exceptions in section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list." State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

of MDEL's and mass-based effluent limits for CBOD5 and TSS will not result in a decrease in the level of treatment or control, or a reduction in water quality. Furthermore, both concentration-based AMEL's and AWEL's remain for CBOD5 and TSS, as well as a discharge flow prohibition that limits the amount of flow that can be discharged to the receiving water. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and permitted average dry weather flow by a conversion factor to determine the mass-based effluent limitations. Therefore, the Central Valley Water Board finds that the removal of MDEL's and mass-based effluent limits for CBOD5 and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Antidegradation Policy.

b. **Groundwater.** The Discharger utilizes oxidation ponds and engineered treatment wetlands. Domestic wastewater contains constituents such as total dissolved solids, electrical conductivity, pathogens, nitrates, organics, metals, and oxygen-demanding substances. Percolation from the ponds may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with the State Antidegradation Policy. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with the maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with the State Antidegradation Policy provided that:

   i. The degradation is limited in extent;

   ii. The degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;

   iii. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating BPTC measures; and

   iv. degradation does not result in water quality less than that prescribed in the Basin Plan.

   A report, *Background Groundwater Quality Characterization Technical Report for the City of Stockton Regional Wastewater Control Facility* (Condor, 2013) was prepared in response to previous Order R5-2008-0154 and shows that nitrate and salinity have degraded groundwater quality when compared to background. This Order establishes some

groundwater limitations to assure protection of beneficial uses of groundwater. For additional information see section V.B of this Fact Sheet.

5. Groundwater Quality

A report, *Background Groundwater Quality Characterization Technical Report City of Stockton Regional Wastewater Control Facility* (Condor, 2013), was prepared for the City of Stockton to characterize background groundwater quality conditions within influence of the Facility's discharge. Condor evaluated approximately 13,000 data values, sampled over a 9-year monitoring period. The dataset was comprised of several types of samples. Groundwater grab samples from direct push sampling in adjacent areas of equal size and similar land use, repeated independent samples from a network of 21 monitoring wells, sampled quarterly or semi-annually, surface water and effluent samples. Data included typical groundwater parameters and stable isotope ratios.

Background and Hydrologic Conditions. The Facility is located in the San Joaquin Delta, along the San Joaquin River (SJR) north of State Route 4, with Rough and Ready Island located to the north, an industrial area across the SJR to the northeast and east, and agricultural lands located to the south and west (Attachment B). Approximately 600 acres of oxidation ponds and wetlands, at mean sea level, are adjacent to the SJR and Burns Cutoff. Daily tides and pumping to the California Aqueduct at Clifton Court Forebay both contribute to water level fluctuation and flow reversals in the SJR. The minimum river stage is above the ground surface elevation of the surrounding farmland.

In general, areas of poor water quality with high salinity exist throughout the Delta subbasin. TDS values range from 210 to 7,800 mg/L and average about 1,190 mg/L, and elevated chloride and nitrate levels occur in several areas within the Delta subbasin (California's Groundwater, Bulletin 118, 20 January 2006).

Hydrogeology. The hydrogeology of the Facility and surrounding area is described in detail in the *Report of Groundwater Conditions in the Vicinity of the Stockton Regional Wastewater Facility* (Condor, 2006). In summary, the Facility is located on the SJR flood plain and is a natural regional groundwater discharge area. Agricultural practices require pumping from adjacent drains and ditches thereby lowering groundwater. Geologic well borings show the Facility is underlain by approximately 25 feet of silty clay, silt and clay. *"Groundwater occurs within discrete discontinuous layers of sandy channel deposits and moves in response to low gradients controlled by drainage canals and pumping. Many isolated pockets of stagnant groundwater are expected to occur around and under the Facility ponds and constructed wetlands. The hydrogeologic flow conditions around the Site are relatively static. Gradients are low, and aquifers are of low*

transmissivity and storage. Potential recharge areas are inferred from surface water elevations in the SJR and the ponds. Stable isotopes suggest that precipitation is a larger contributor to groundwater recharge than the river, and a flat well hydrograph at MW-14 shows locally poor hydraulic connection to surface water in the river occurs." (Condor, 2013)

There exists a groundwater interceptor system on the southern and western perimeters of the oxidation ponds that flattens the groundwater gradient around the facility. Outward groundwater flow is captured and pumped back to the ponds. Agricultural drainage water from the southern neighbor is also pumped to the groundwater interceptor ditch and thence to the ponds for treatment and discharge. The groundwater elevations outside the interceptor system are below sea level, except within in the SJR levees. Groundwater gradient outside the facility is completely controlled by agricultural drainage ditches used to drain fields. Groundwater is removed through a network of straight-line ditches and discharged to the river at the Woods Irrigation Company (WIC) Pump Station west of the site. Groundwater conditions are very stable with a controlled flat gradient west of the SJR, and a slightly steeper gradient on the east side of the river defined by river elevations and a pumping depression farther to the east.

Groundwater Monitoring Network and Chemistry. There are 18 active monitoring wells surrounding the Facility and SJR, which are shown in Attachment B. Grab samples are taken either quarterly or semi-annually. The groundwater monitoring network includes seven active wells monitored for groundwater level and quality (MW-1, MW-7, MW-10, MW-12, MW-13, MW-17, and MW-18), six active wells monitored for groundwater level only (MW-3, MW-5, MW-6, MW-9, MW-11, and MW-16), and five dormant wells where no monitoring or water level measurements (MW-2, MW-8, MW-14, MW-15, and MW-19) are performed.

In 15 years of sampling the compliance wells, there have been insignificant changes to water quality. The hydrogeologic regime at the site is known to be very stable. Condor recommended only a minimal monitoring network is needed on the downstream side of the oxidation ponds outside the groundwater interceptor system at MW-7. Monitoring at MW-10 is anticipated to continue for two spring semiannual samples after decommissioning of the tertiary treatment facilities or until groundwater returns below the Water Quality Objective of 10 mg/L. All other wells interior to the groundwater containment system or upgradient of the facility (e.g. MW-15, MW-18) are anticipated to be made dormant.

There are no longer any discharges to land on the east side of the SJR, other than sludge stored on concrete pads. The original event triggering the installation of MW-13 and MW-17 has largely self-remediated. The

Facility will be undergoing its modifications project and all wells on the eastside of the Facility are anticipated to be made dormant. Wells that may obstruct during the future construction will be properly closed before facility upgrades occur.

Background Values. Non-parametric statistical review of each monitored constituent was conducted to perform the background groundwater characterization. Due to high spatial variability in the broader area, there is no single monitoring point or well that represents background quality and the dataset did not follow a standard statistical distribution.

Water quality as indicated by the analytical results shows levels of EC and TDS within expected background ranges but exceeding typical conservative water quality objectives in monitoring wells MW-1, MW-2, MW-3, MW-4 (destroyed), MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, and MW-18. Analytical results also indicated that concentrations of nitrate in monitoring wells MW-10, MW-13, and MW-15, and concentrations of total coliform in every monitoring well have exceeded the Basin Plan water quality objectives. Coliform detections show no clear patterns of contamination from facility discharges. Most consistent coliform detections occurred in a former background well MW-15.

Groundwater Limits. This Order requires the continued monitoring of the groundwater monitoring network, not in its entirety, to monitor the impact of the discharge. This Order also requires monitoring of the pond water to determine whether degradation of the groundwater for certain constituents from percolation of the treated domestic wastewater stored in the unlined facultative ponds is consistent with maximum benefit to the people of California, and thus, complies with Antidegradation Policy.

6. 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 CBOD5, 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 CBOD5, 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 001A and Discharge Point 001B
Table F-14. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis[1]
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15	TTC
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)	% removal	AMEL 85	CFR
pH	Standard Units	Instantaneous Max 8.5 Instantaneous Min 6.5	BP
Total Suspended Solids	mg/L	AMEL 10 AWEL 15	TTC
Total Suspended Solids	% removal	AMEL 85	CFR
Bromoform	µg/L	AMEL 38 MDEL 110	CTR
Ammonia, Total (as N)	mg/L (see table note 2. below)	AMEL 1.2 AWEL 3.2	NAWQC
Ammonia, Total (as N)	mg/L (see table note 3. below)	AMEL 2.3 AWEL 7.5	NAWQC
Ammonia, Total (as N)	mg/L (see table note 4. below)	AMEL 2.4 AWEL 7.6	NAWQC
Ammonia, Total (as N)	lbs/day (see table notes 2. and 5. below)	AMEL 550 MDEL 1,500	NAWQC
Ammonia, Total (as N)	lbs/day (see table notes 3. and 5. below)	AMEL 1,100 MDEL 3,400	NAWQC
Ammonia, Total (as N)	lbs/day (see table notes 4. and 5. below)	AMEL 1,100 MDEL 3,500	NAWQC

Parameter	Units	Effluent Limitations	Basis[1]
Chlorine, Total Residual	mg/L	AWEL 0.011 (see table note 6. below) MDEL 0.019 (see table note 7. below)	NAWQC
Chlorpyrifos	µg/L	(see table notes 8. and 9. below)	TMDL
Diazinon	µg/L	(see table notes 8. and 9. below)	TMDL
Dissolved Oxygen	mg/L	MDEL 6.0 (see table note 10. below)	BP
Dissolved Oxygen	mg/L	MDEL 5.0 (see table note 11. below)	BP
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,300 (see table note 12.)	PB
Methylmercury	grams/year	AMEL 13 (see table note 13. below)	TMDL
Nitrate Plus Nitrite, Total (as N)	mg/L	AMEL 10 AWEL 14	MCL
Temperature	°F	(see table note 14. below)	TP
Total Coliform Organisms	MPN/100 mL	AWEL 2.2 (see table note 15. below) MDEL 23 (see table note 16. below) Instantaneous Max 240	Title 22
Acute Toxicity	% Survival	MDEL 70/90 (see table notes 17. and 18. below)	BP
Chronic Toxicity	TUc	MDEL 1 (see table note 19. below)	BP
Chlorodibromomethane	µg/L	AMEL 29 MDEL 75 (see table note 20. below)	CTR

Parameter	Units	Effluent Limitations	Basis[1]
Dichlorobromomethane	µg/L	AMEL 17 MDEL 34 (see table note 20. below)	CTR

Table F-14 Notes:

1. 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 30 November.
4. Effluent limitations applicable from 1 December through 31 March.
5. Based on a design average dry weather flow of 55 MGD.
6. Applied as a 4-day average effluent limitation.
7. Applied as a 1-hour average effluent limitation.
8. 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
9. Average Weekly Effluent Limitation (AWEL)
   $S(AWEL) = Cd\ (W\text{-}avg)/0.079 + Cc\ (W\text{-}avg)/0.012 \leq 1.0$
   Where:
   Cd(W-avg) = average weekly diazinon effluent concentration in µg/L
   Cc (W-avg) = average weekly chlorpyrifos effluent concentration in µg/L
10. Effluent limitations applicable from 1 September through 30 November.
11. Effluent limitations applicable from 1 December through 31 August.
12. Applied as an annual average effluent limitation.
13. The effluent calendar year annual methylmercury load shall not exceed 13 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.
14. The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
15. Applied as a 7-day median effluent limitation.
16. Not to be exceeded more than once in any 30-day period.
17. 70 percent minimum of any one bioassay.

18. 90 percent median for any three consecutive bioassays.
19. Effective 1 April 2025, the effluent chronic toxicity shall not exceed 1.3 TUc (as 100/NOEC) AND a percent effect of 25 percent at 100 percent effluent, for any endpoint as the median of up to three consecutive chronic toxicity tests within a 6-week period.
20. Effluent limitations applicable when discharge occurs at west-bank outfall (DIS-001A)

E. Interim Effluent Limitations

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

1. Chronic Whole Effluent Toxicity (WET)

(a) **Compliance Schedule.** 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 limitation for chronic WET, as described below. Therefore, a compliance schedule for compliance with the final effluent limitation for chronic WET is established in the Order.

A compliance schedule is necessary because the Discharger must implement actions to comply with the final effluent limitation for chronic WET.

The Discharger has made diligent efforts to quantify chronic WET in the discharge and the sources of chronic WET in the waste stream. The Discharger conducted quarterly chronic WET monitoring during the term of Order R5-2014-0070-03.

The compliance schedule is as short as possible. An interim performance-based limitation has been included in this Order and was determined as described in section IV.E.1.b, below. The interim effluent limitation for chronic WET is in effect until the final effluent limitation takes effect on **1 April 2025.** The interim numeric effluent limitation for chronic WET and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

(b) **Interim Requirements.** 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 a compliance schedule longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or pervious 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.

i. **Monitoring Requirements.** The Discharger shall perform **quarterly** chronic toxicity testing, concurrent with effluent ammonia sampling. During the compliance schedule, for chronic toxicity effluent limitations between 1 February 2020 to 31 March 2025, monitoring is required between 1 October to 31 March for each calendar year. For the second and third quarterly self-monitoring reports, the Discharger shall submit a monitoring report stating that chronic toxicity monitoring is not required. Pyrethrin pesticide applications are applied seasonally to the treatment ponds and wetlands, based on the Discharger's vector control as-needed basis recommendation. Throughout the proposed permit term, the source of toxicity is predictable during seasonal periods, but unknown throughout the remainder parts of the annual year. The observed toxicity to Ceriodaphnia dubia reproduction primarily occurrs from April through October, consistent with the mosquito abatement treatments in the treatment ponds and wetlands.

ii. **Chronic Whole Effluent Toxicity (WET) Limitations.** The interim effluent limitation for chronic WET is based on Facility performance. Based on quarterly chronic WET testing conducted over the term of Order R5 2014-0070-03, the maximum observed result was >8 TUc (as 100/NOEC) and a percent effect of 53 percent at 100 percent effluent. The Central Valley Water Board has established an interim effluent limitation for chronic WET of **16 TUc** (as 100/NOEC) and a percent effect of 25 percent at 6.25 percent effluent. A chronic toxicity monitoring trigger of 1 TUc (where TUc = 100/NOEC) is included. The monitoring trigger is not an effluent limitation; it is the toxicity threshold above which the Discharger is required to initiate additional actions to evaluate effluent toxicity.

iii. **Toxicity Reduction Evaluation (TRE) Requirements.** This provision requires the Discharger to investigate the causes of and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Special Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity.

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 final effluent limitations can be achieved.

2. **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 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 2014-0070-03. The Discharger has developed and continues to implement a pollution prevention plan for mercury, which was submitted to the Central Valley Water Board on 8 June 2009, and provided annual progress reports during the term of Order R5 2014-0070-03.

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 99.9th percentile of the 12 month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges.

This Order retains the interim performance-based effluent limitation for total mercury from Order R5-2014-0070-03, 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.

3. **Nitrate plus Nitrite**

(a) **Compliance Schedule.** 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 limitation for nitrate plus nitrite, as described below. Therefore, a compliance schedule for compliance with the final effluent limitations for nitrate plus nitrite is established in the Order.

A compliance schedule is necessary because the Discharger must implement actions, including completion of Facility upgrades, to comply with the final effluent limitations for nitrate plus nitrite.

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 weekly monitoring for nitrate and nitrite during the term of Order R5-2014-0070-03. The Discharger has developed and continues to implement a pollution prevention plan for nitrate plus nitrite, which was submitted to the Central Valley Water Board on 31 December 2014, and provided annual progress reports during the term of Order R5 2014-0070-03. The source of nitrate plus nitrite is from domestic sewage and the existing biological treatment system.

The compliance schedule is as short as possible. The Discharger needs time to design, fund, and construct the necessary facilities to achieve compliance with the effluent limitations for nitrate plus nitrite, and the compliance schedules and interim milestones in this Order are as short as possible give the type of facilities being constructed and industry experience with the time typically required to construct similar facilities.

(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 a compliance schedule longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or pervious 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.

Order R5-2014-0070-03 established an interim performance-based MDEL of 31 mg/L for nitrate plus nitrite. This Order retains the interim performance-based MDEL as an AMEL and establishes an interim performance-based AWEL to be consistent with the averaging periods of the final effluent limitations included for nitrate plus nitrite. The interim performance-based AMEL of 31 mg/L was developed using the statistical approach provided in section 3.3 of the TSD. The interim performance-

based AWEL for nitrate plus nitrite of 42 mg/L was calculated using the AWEL/AMEL multiplier referenced in Attachment H to this Order.

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

F. Land Discharge Specifications - Not Applicable

G. Recycling Specifications - Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

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

   a. **Temperature.** The Thermal Plan is applicable to the discharge from the Facility. For the purposes of the Thermal Plan, the discharge is considered to be an Existing Discharge of Elevated Temperature Waste to an Estuary, as defined in the Thermal Plan. Therefore, the Discharger must meet the water quality objective at section 5.A.(1) of the Thermal Plan, which requires compliance with the following:

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

ii. 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.

iii. 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.

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

b. This Order contains receiving water limitations for temperature based on the Thermal Plan.

B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal, industrial service supply, industrial process supply, and agricultural supply.

2. **Basin Plan** water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituents objective states that groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal. These include, at a minimum, compliance with MCL's in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect MUN, agricultural supply, industrial supply or some other beneficial use.

3. **Total dissolved solids**, which were found to be present in the wastewater at a maximum annual average concentration of 633 mg/L, have the potential to degrade groundwater quality at this site because there is little ability for attenuation in the shallow permeable vadose zone beneath this Facility. According to Ayers and Westcot, dissolved solids can cause yield or vegetative growth reductions of sensitive crops if present in excess of 450 mg/L in

irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of total dissolved solids is the narrative chemical constituents objective, which is applied following the "*Policy of Application of Water Quality Objectives"* in the Basin Plan. A numerical groundwater limitation of 450 mg/L for total dissolved solids, based on Ayers and Westcot, is appropriate to apply the narrative chemical constituents objective to protect the unrestricted agricultural use of groundwater in the absence of information to support a less protective limit.

4. **Nitrate**, which was found to be present in the wastewater at concentrations up to 29 mg/L as nitrogen, has the potential to degrade groundwater quality because there is little ability for attenuation in the shallow permeable vadose zone beneath the Facility. Furthermore, groundwater monitoring data show nitrate concentrations above the Primary MCL of 10 mg/L in monitoring wells MW-10. The chemical constituents objective prohibits concentrations of chemical constituents in excess of California MCL's in groundwater that is designated as municipal. The California Primary MCL for nitrate is equivalent to 10 mg/L as nitrogen, and groundwater beneath the Facility is designated as municipal. It is therefore appropriate to adopt a numerical groundwater limitation of 10 mg/L for nitrate as nitrogen to implement the chemical constituents objective to protect the municipal beneficial use of groundwater.

5. **pH**, which ranged from 6.5 to 8.2 standard units in the domestic wastewater, has the ability to degrade groundwater quality at this site because there is little potential for buffering in the shallow permeable vadose zone. According to Ayers and Westcot, pH less than 6.5 or greater than 8.4 can cause yield or vegetative growth reductions of sensitive crops if present in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of substances that affect pH is the narrative chemical constituents objective, which is applied following the *"Policy of Application of Water Quality Objectives"* in the Basin Plan. A numerical groundwater limitation range of 6.5 to 8.4 for pH, based on Ayers and Westcot, is relevant and appropriate to apply the narrative chemical constituents objective to protect unrestricted agricultural use of groundwater in the absence of information to support a less protective limit.

6. **Groundwater limitations** are required to protect the beneficial uses of the underlying groundwater.

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 40 C.F.R. section 122.42.

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

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. 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 fish tissue objectives, the 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 may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

b. **Pollution Prevention.** This Order requires the Discharger continue to implement pollution prevention plans following Water Code section 13263.3(d)(3) for mercury and nitrate plus nitrite. This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for mercury or nitrate plus nitrite based on a review of the pollution prevention plan.

c. **Whole Effluent Toxicity (WET).** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity through a site-specific TRE or, under certain circumstances, through participation in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE. This Order may be reopened to include a revised chronic toxicity limitation, revised acute toxicity limitations, and/or limitations for a specific toxicant identified in the

TRE and/or TES. Additionally, the State Water Board is developing new statewide toxicity provisions through the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* that will be applicable to the Discharger. This Order may be reopened to include a revised chronic toxicity limitation once the new statewide toxicity provisions are adopted.

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 recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

e. **Drinking Water Policy.** On 26 July 2013, the Central Valley Water Board adopted Resolution R5-2013-0098, amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

f. **Diazinon and Chlorpyrifos Basin Plan Amendment.** This provision allows the Central Valley Water Board to reopen this Order to modify diazinon and chlorpyrifos effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

g. **Ultraviolet Light (UV) Disinfection Operating Specifications.** UV system operating specifications are required to ensure that the UV system is operated to achieve the required pathogen removal. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. The UV specifications in this Order are based on the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) *"Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"* first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI guidelines). If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation required by Title 22 for disinfected tertiary recycled water, this Order may be reopened to modify the UV specifications, in accordance with Reopener Provision VI.C.1.e.

h. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board approved Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. More information regarding these Amendments can be found at the following link:

Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) web page:
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at section 3.1.20) Based on whole effluent chronic toxicity testing performed by the Discharger from November 2015 through October 2018, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective.

The MRP of this Order requires chronic WET monitoring to demonstrate compliance with the numeric chronic toxicity effluent limitations. If the discharge exceeds the chronic toxicity monitoring trigger defined in section VI.C.2.a of the Order, this provision requires the Discharger either participate in an approved TES or conduct a site-specific TRE.

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

low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-2), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

Figure F-2: WET Accelerated Monitoring Flow Chart

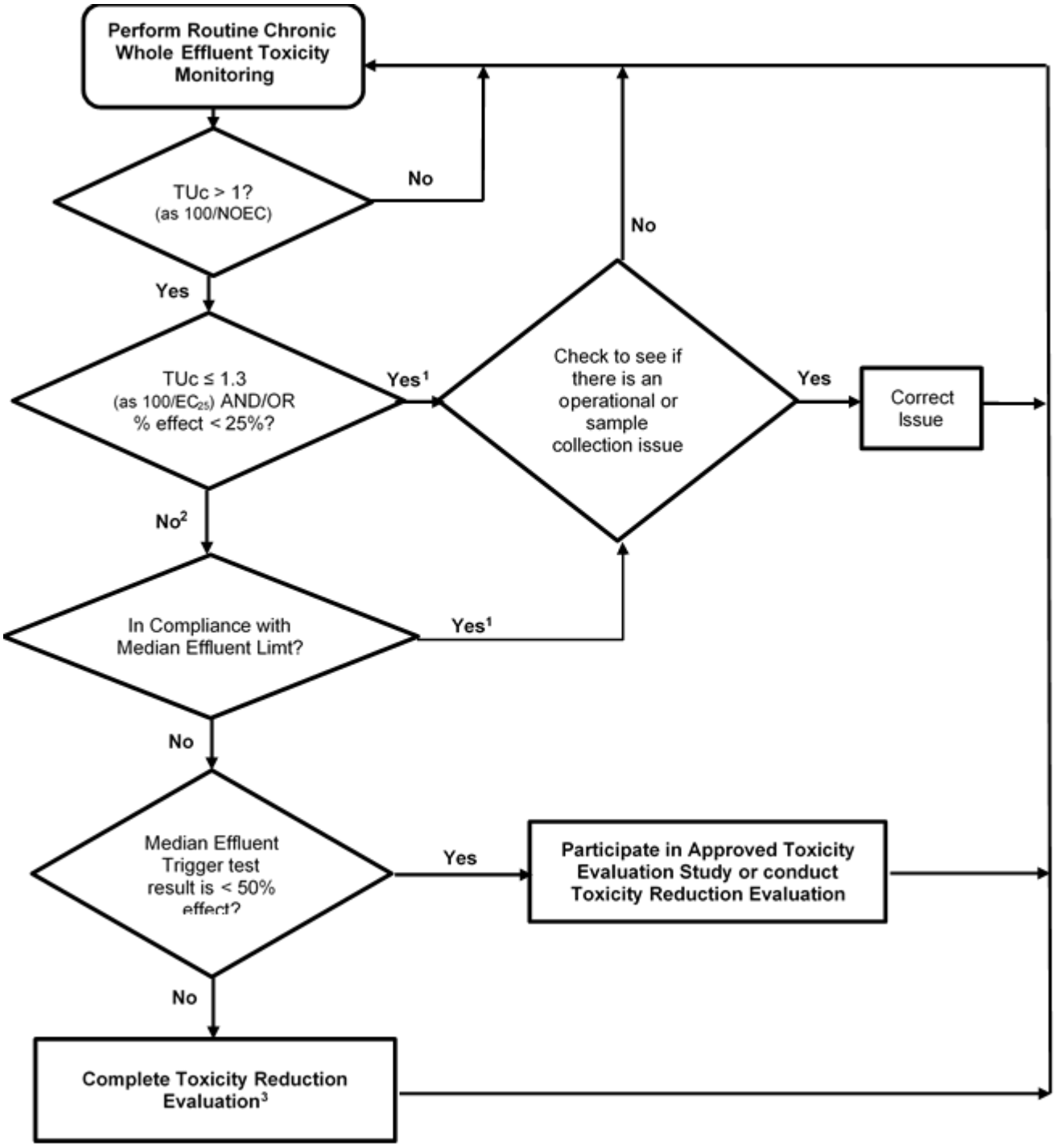


Figure F-2 Notes:

1. The Discharger may participate in an approved TES if the discharge has exceeded the chronic toxicity effluent limitations twice or more in the past 12-month period and the cause is not identified and/or addressed.

2. The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.
3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

3. Best Management Practices and Pollution Prevention

a. **Water Code section 13263.3(d)(3) Pollution Prevention Plans.** . Pollution prevention plans for mercury and nitrate plus nitrite are required in this Order per Water Code section 13263.3(d)(1)(C). The pollution prevention plans required in section VI.C.3.a and in sections VI.C.7.b and VI.C.7.c of this Order shall, at a minimum, meet the requirements outlined in Water Code section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:

i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

iv. A plan for monitoring the results of the pollution prevention program.

v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger’s pollution prevention goals and strategies, including priorities for short-term and long-term action, and

a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

b. **Salinity Best Management Practices Plan.** In cases where it is infeasible for a POTW to comply with traditional water quality-based effluent limitations for salinity, the Bay-Delta Plan includes an implementation program (Chapter VI Section B.1.vii of the Bay-Delta Plan) that provides alternative effluent limits, including a performance-based effluent limit and implementation of best management practices to reduce salinity. This Order requires the Discharger submit and implement a BMP plan for salinity in accordance with Chapter VI Section B.1.vii of the Bay-Delta Plan. The BMP plan shall be submitted to the Central Valley Water Board by the due date in the Technical Reports Table and shall include the following to reduce salinity to the maximum extent practicable in an effort to comply with the Southern Delta water quality objectives for electrical conductivity:

i. An industrial pretreatment program, implemented through local ordinances, that minimizes salinity inputs from all industrial sources of salinity within the POTW's collection system;

ii. Source control measures, such as reducing salinity concentrations in source water supplies;

iii. Actions to limit or ban the use of residential self-generating water softeners or imposing salt efficiency standards on such water softeners;

iv. A salinity education and outreach program; and

v. Ongoing participation in the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).

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. The tertiary treatment process

utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.

b. **Ultraviolet (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system for the Future Facility is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The NWRI guidelines include UV operating specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the Treatment Technology Report for Recycled Water, December 2009 (or a later version, as applicable) published by the DDW. The UV system shall also conform to all requirements and operating specifications of the NWRI guidelines. A memorandum dated 1 November 2004 issued by DDW to Regional Water Board executive officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of lamp sleeves, as well as, include provisions that specify minimum delivered UV dose that must be maintained (per the NWRI Guidelines).

For granular media filtration, the NWRI Guidelines recommend a minimum hourly average UV dose of 100 mJ/cm2. Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm2 and a minimum hourly average UV transmittance of 55%, per the NWRI Guidelines. If the Discharger conducts a site-specific UV engineering study that demonstrates a lower UV dose meets a Title 22

equivalent virus removal, this Order may be reopened to revise the UV operating specifications accordingly.

b. **Treatment Pond Operating Specifications.** The operation and maintenance specifications for the treatment ponds are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from R5-2014-0070-03. In addition, reporting requirements related to use of the treatment ponds are required until the construction and commissioning of the Facility modifications are completed to monitor their use and the potential impact on groundwater.

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

a. Pretreatment Requirements.

i. 40 C.F.R. section 403.8(a) requires POTW's with a total design flow greater than 5 MGD and receiving pollutants that pass through or interfere with the operation of the POTW to establish a POTW Pretreatment Program. The Facility has a design flow greater than 5 MGD and, as identified in the ROWD, receives discharges from 27 non-categorical significant industrial users (SIU's) and 12 categorical industrial users (CIU's). Therefore, the Discharger is required to implement a pretreatment program.

ii. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require POTW's to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants that 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.

iii. The Discharger shall continue to implement and enforce its approved pretreatment program, which 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. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in in this Order means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the Facility. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment

for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. part 503. This Order does not regulate offsite use or disposal of biosolids, which are regulated instead under 40 C.F.R. part 503; administered by U.S. EPA. The Sludge/Biosolids Treatment or Discharge Specifications in this Order implement the California Water Code to ensure sludge/biosolids are properly handled on-site to prevent nuisance, protect public health, and protect groundwater quality.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Consistent with Order R5 2014-0070-03, this Order requires the discharge to be oxidized, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent.

7. Compliance Schedules

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

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

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

b. Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established;

c. A proposed schedule for additional source control measures or waste treatment;

d. Data demonstrating current Facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;

e. The highest discharge quality that can reasonably be achieved until final compliance is attained;

f. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and

g. Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

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

a. **Chronic Whole Effluent Toxicity (WET).** The Discharger submitted a request and justification, dated **20 May 2019**, for a compliance schedule for chronic WET. The compliance schedule justification included all items specified in subsections (a) through (g), above. This Order establishes a compliance schedule for the final WQBEL's for chronic WET, with compliance required by **31 March 2025**.

b. **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

c. **Nitrate plus Nitrite.** The Discharger submitted a request and justification, dated 01 March 2014, for a compliance schedule for nitrate plus nitrite. The compliance schedule justification included all items specified in subsections (a) through (g), above; therefore, Order R5-2014-0070-03 established a compliance schedule for the final WQBEL's for nitrate plus nitrite, with compliance required by 1 June 2024. As described in section IV.E.3 of this Fact Sheet, the Discharger needs additional time to design, fund, and construct the necessary facilities to achieve compliance with the final effluent limitations for nitrate plus nitrite. Therefore, this Order retains the compliance schedule for nitrate plus nitrite established in Order R5 2014 0070 03.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements.

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

The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., CBOD5 and TSS reduction requirements). The monitoring frequencies for flow (continuous), CBOD5 (weekly), pH (continuous), TSS (weekly), electrical

conductivity (monthly), and total dissolved solids (monthly) have been retained from Order R5 2014 0070 03.

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 or discharge prohibitions. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. As described in section IX.E.1 of Attachment E, the effluent characterization monitoring is required when establishing appropriate water quality criteria that fully comply with the CTR and SIP. The Discharger has initiated its Facility Modifications Project to increase the reliability and efficiency of its wastewater and solids treatment system, which includes upgrades and/or additions to several unit processes. Therefore, the effluent characterization monitoring data collected during this permit term will be used minimally. Upon completion of the Facility Modifications Project, an RPA will be subsequently conducted for effluent characterization and the monitoring results will be included in a future ROWD. Based on Central Valley Water Board staff's assessment, one sample per permit term for effluent characterization monitoring is sufficient to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, assess the impacts of the discharge on the receiving stream and groundwater, and satisfy the minimum sampling requirements prescribed by the SIP.

3. Effluent monitoring frequencies and sample types for flow (continuous), CBOD5 (three times per week), pH (continuous), TSS (three times per week), bromoform (monthly), chlorodibromomethane (monthly), dichlorobromomethane (monthly), mercury (monthly), ammonia (three times per week), chlorine residual (continuous), dissolved oxygen (daily), electrical conductivity (weekly), hardness (monthly), methylmercury (monthly), nitrate (weekly), nitrite (weekly), temperature (continuous), total coliform organisms (three times per week), and total dissolved solids (monthly) have been retained from Order R5 2014 0070 03 to determine compliance with effluent limitations and discharge prohibitions for these parameters.

4. This Order establishes annual effluent monitoring requirements for chlorpyrifos and diazinon in order to determine compliance with the WQBEL's for these parameters based on the TMDL for chlorpyrifos and diazinon for Sacramento-San Joaquin Delta waterways.

5. As discussed in section IV.C.3 of this Fact Sheet, this Order establishes effluent limitations for nitrate plus nitrite as a single parameter. Therefore, in addition to monthly effluent monitoring requirements for nitrate and nitrite, this Order requires the Discharger to calculate the sum of nitrate and nitrite in the

effluent weekly in order to determine compliance with the applicable effluent limitations for nitrate plus nitrite as a single parameter.

6. On 21 December 2018, U.S. EPA finalized updated NAWQC for aluminum in freshwater that reflect the latest science and allow for development of criteria reflecting the impact of local water chemistry on aluminum toxicity to aquatic life. The updated criteria account for the site-specific bioavailability of aluminum in receiving waters, which is dependent on pH, dissolved organic carbon, and hardness. This Order establishes monthly receiving water monitoring requirements for dissolved organic carbon at Monitoring Location EFF 001 in order to collect sufficient data for calculating aquatic life criteria for aluminum in accordance with the 2018 NAWQC. The Facility Modifications Project will result in significant changes to the secondary and tertiary treatment processes, which could result in changes to the effluent dissolved organic carbon characteristics. Therefore, routine monthly effluent monitoring for dissolved organic carbon is not required until operation of the Facility Modifications Project commences.

7. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires at mininimum, one representative effluent characterization monitoring event for priority pollutants and other constituents of concern during 2021 . Since the Discharger is in the process of completing major Facility upgrades, only one sampling event is required because additional monitoring results will not likely be representative of the nature of the future discharge. Characterization of the upgraded facility will be required under the next permit renewal. See section IX.E of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

8. Water Code section 13176, subdivision (a), states: “The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of chapter 4 of part 1 of division 101 of the Health and Safety Code.” DDW accredits laboratories through 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 (Water Code Section 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)). The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. § 136.3(e), Table II. The Discharger maintains an ELAP accredited laboratory on-site and

conducts analyses for chlorine residual, dissolved oxygen, and pH within the required 15-minute hold times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity**. Order R5-2014-0070-03 required monthly 96-hour bioassay testing to demonstrate compliance with the effluent limitations for acute toxicity. This Order reduces the required testing frequency from monthly to quarterly. The Central Valley Water Board concludes this testing frequency is sufficient for evaluating compliance with the effluent limitations for acute toxicity.

2. **Chronic Toxicity**. Consistent with Order R5-2014-0070-03, quarterly chronic WET testing is required in order to demonstrate compliance with the numeric chronic toxicity effluent limitations. During the compliance schedule, for chronic toxicity effluent limitations between 1 February 2020 to 31 March 2025, monitoring is required between 1 October to 31 March, but not required between 1 April and 30 September for each calendar year. Pyrethrin pesticide applications are applied seasonally to the ponds and wetlands, based on the Discharger's vector control as-needed basis recommendation. Throughout the proposed permit term, the source of toxicity is predictable during seasonal periods, but unknown throughout the remainder parts of the annual year. The observed toxicity to Ceriodaphnia dubia reproduction primarily occurrs from April through October, consistent with the mosquito abatement treatments in the ponds and wetlands.

   The most sensitive species to be used for chronic toxicity testing was determined in accordance with the process outlined in the MRP, section V.E.2. Based on chronic toxicity data collected from November 2015 through October 2018, the species that exhibited the maximum chronic toxicity result was the water flea (*Ceriodaphnia dubia*), with a result of >8 TUc and a percent effect of 53 percent. Consequently, *Ceriodaphnia dubia* has been established as the most sensitive species for chronic WET testing.

D. Receiving Water Monitoring

1. Surface Water

a. **Delta Regional Monitoring Program.** The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than

continue to be used in individual, uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program will provide data to better inform management and policy decisions regarding the Delta.

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 may be used to help establish background receiving water quality for an RPA in an NPDES permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

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

Since the Discharger is participating in the Delta Regional Monitoring Program, this Order does not require receiving water characterization monitoring for purposes of conducting the RPA. However, the ROWD for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents during the term of the permit. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with the ROWD. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water

monitoring data collected at greater distances from the discharge point. Historic receiving water monitoring data taken by the Discharger and from other sources may also be evaluated to determine whether or not that data is representative of current receiving water conditions. If found to be representative of current conditions, then that historic data may be used in characterizing receiving water quality for the purposes of the RPA.

b. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

c. Receiving water monitoring frequencies and sample types for pH (monthly), dissolved oxygen (monthly), electrical conductivity (monthly), hardness (monthly), temperature (monthly), and turbidity (monthly) at Monitoring Locations RSW-001and RSW 003 have been retained from Order R5 2014 0070-03 to determine compliance with the applicable receiving water limitations and characterize the receiving water for these parameters.

d. On 21 December 2018, U.S. EPA finalized updated NAWQC for aluminum in freshwater that reflect the latest science and allow for development of criteria reflecting the impact of local water chemistry on aluminum toxicity to aquatic life. The updated criteria account for the site-specific bioavailability of aluminum in receiving waters, which is dependent on pH, dissolved organic carbon, and hardness. This Order establishes monthly receiving water monitoring requirements for dissolved organic carbon at Monitoring Locations RSW-001, RSW 002, RSW 002A, and RSW-003 in order to collect sufficient data for calculating aquatic life criteria for aluminum in accordance with the 2018 NAWQC.

e. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires receiving water monitoring for priority pollutants and other constituents of concern once during the year 2020 at Monitoring Location RSW-001, in order to collect data to conduct an RPA for the next permit renewal.

2. Groundwater

a. Water Code section 13267 states, in part, “(a) A Regional Water Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation…, the Regional Water Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The

burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, a Regional Water Board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports. The MRP is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the MRP are necessary to assure compliance with these WDR's. The Discharger is responsible for the discharges of waste at the Facility subject to this Order.

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents that may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide BPTC to comply with the State Antidegradation Policy. Economic analysis is only one of many factors considered in determining BPTC. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this Order may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened, and specific numeric limitations established consistent with the State Antidegradation Policy and the Basin Plan.

c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached MRP. The groundwater monitoring reports are necessary to evaluate impacts to waters of the state to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including the State Antidegradation Policy. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

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.

2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2014-0070-03, this Order requires annual water supply monitoring for electrical conductivity, standard minerals, and total dissolved solids at Monitoring Location SPL-001.

3. UV Disinfection System Monitoring

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by the DDW, and the NWRI, Guidelines.

4. Treatment Pond Monitoring

While in use, treatment pond monitoring is required until the construction and commissioning of the Facility modifications completed to ensure proper operation of the storage pond. Consistent with Order R5-2014-0070-03, this Order requires monitoring for freeboard (weekly), pH (weekly), dissolved oxygen (weekly), electrical conductivity (twice per year), and nitrate (twice per year) at Monitoring Location PND-123C.

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

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

annually the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the City of Stockton Regional Wastewater Control Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through posting of the Notice of Public Hearing (Notice) at the City of Stockton City Hall and Facility on 23 December 2019 and the newspaper of general publication on 03 January 2020. The Notice was also posted on the Central Valley Water Board's website on 13 December 2019.

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

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **13 January 2020**.

C. Public Hearing

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

Date:	**20/21 February 2020**
Time:	**8:30 a.m.**
Location:	Regional Water Quality Control Board, Central Valley Region

11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

D. Reconsideration of Waste Discharge Requirements

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

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

Or by email at waterqualitypetitions@waterboards.ca.gov

Instructions on how to file a petition for review (http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_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 (559) 445-5116.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Saranya Elankovan at (916) 464-4742.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia Nitrogen, Total (as N)	mg/L	8.9	0.20	2.30	9.64 (see table note 1. below)	2.30 (see table note 2. below)	--	--	--	--	Yes
Bromoform	µg/L	9.79	<0.033	4.3	--	--	4.3	360	--	80 (see table note 3. below)	Yes
Chloride	mg/L	170	NR	230	860 (see table note 1. below)	230 (see table note 4. below)	--	--	--	250	No
Chlorodibromomethane	µg/L	15.59	<0.078	0.41	--	--	0.41	34	--	80 (see table note 3. below)	Yes
Dichlorobromomethane	µg/L	11.64	<0.089	0.56	--	--	0.56	46	--	80 (see table note 3. below)	Yes
Dissolved Oxygen	mg/L	7.1 (see table note 5. below)	--	(see table note 6. below)	--	--	--	--	-- (see table note 6. below)	--	No (see table note 7. below)

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Electrical Conductivity @ 25°C	µmhos/cm	1025 (see table note 8. below)	603 (see table note 8. below)	900	--	--	--	--	--	900	Inconclusive (see table note 7. below)
Lead, Total Recoverable	µg/L	2.66	0.517	2.6	67	2.6	--	--	--	--	No (see table note 7. below)
Mercury, Total Recoverable	µg/L	0.00089 (see table note 8. below)	0.00234 (see table note 8. below)	0.012	--	--	--	--	--	0.012 (see table note 9. below)	No (see table note 10. below)
Methylmercury	µg/L	0.000358	NR	--	--	--	--	--	--	--	No (see table note 10. below)
Nitrate, Total (as N)	mg/L	29	NR	10	--	--	--	--	--	10	Yes
Nitrite, Total (as N)	mg/L	0.32	NR	1.0	--	--	--	--	--	1.0	No
Sulfate	mg/L	64 (see table note 8. below)	NR	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	633 (see table	NR	500	--	--	--	--	--	500	Inconclusive (see table note 7. below)

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
		note 8. below)									
Zinc, Total Recoverable	µg/L	15.2	118	102	120	120	--	--	102	5000	No (see table note 7. below)

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

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
NR = Not Reported

Footnotes:
(1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1 hour average.
(2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30 day average.
(3) Represents the Primary MCL for total trihalomethanes, which include bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
(4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4 day average.
(5) Minimum effluent average daily dissolved oxygen concentration.
(6) Dissolved oxygen concentrations shall not be reduced below 6.0 mg/L from 1 September through 30 November and 5.0 mg/L from 1 December through 31 August.
(7) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.
(8) Represents the maximum observed annual average concentration for comparison with the Secondary MCL or Sport Fish Water Quality Objective for mercury, where applicable.

(9) State Water Board Sport Fish Water Quality Objective for mercury.
(10) Constituents with a Total Maximum Daily Load (TMDL).

ATTACHMENT H – CALCULATION OF WQBEL'S

HUMAN HEALTH WQBEL'S CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV[1]	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Bromoform	µg/L	4.3	<0.033	1.70	8	2.98	2.56	38	110	--
Chlorodibromomethane	µg/L	0.41	<0.078	1.11	85	2.62	2.05	29	75	--
Dichlorobromomethane	µg/L	0.56	<0.089	0.60	35	2.01	1.55	17	34	--
Nitrate Plus Nitrite, Total (as N)	mg/L	10	--	0.31	--	1.40[2]	1.28	10	--	14

[1] Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

[2] AWEL/AMEL multiplier used to calculate the AWEL for nitrate plus nitrite.

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 – CALCULATION OF WQBEL'S

AQUATIC LIFE WQBEL'S CALCULATIONS

Parameter	Units	CMC Criteria	CCC Criteria	B	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[1]	AWEL[2]	MDEL[3]
Ammonia Nitrogen, Total (as N)	mg/L[4]	9.64	2.30	0.14	--	--	0.34	3.2	0.79	1.8[5]	1.2	2.6	--	1.2[6]	3.2[7]	--
Ammonia Nitrogen, Total (as N)	mg/L[8]	19.7	4.37	<0.024	--	--	0.20	3.9	0.66	2.9[5]	1.3	4.0	--	2.3[6]	7.5[7]	--
Ammonia Nitrogen, Total (as N)	mg/L[9]	19.8	4.37	0.20	--	--	0.19	3.7	0.64	2.8[5]	1.4	4.2	--	2.4[6]	7.6[7]	--

[1] Average Monthly Effluent Limitations are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.

[2] Average Weekly Effluent Limitations are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.

[3] Maximum Daily Effluent Limitations are calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.

[4] Effluent limitations applicable from 1 April through 31 October.

[5] The LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30.

[6] Seasonal AMEL's retained from Order R5-2014-0070-03 in order to avoid backsliding in accordance with sections 402(o) and 303(d)(4) of the Clean Water Act and federal regulations at 40 C.F.R. section 122.44(l).

[7] Seasonal AWEL's calculated based on the CMC, CCC, and CV used to calculate WQBEL's for ammonia in Order R5-2014-0070-03.

[8] Effluent limitations applicable from 1 November through 30 November.

[9] Effluent limitations applicable from 1 December through 31 March.

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