

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

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**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0078948
ORDER R5-2021-00XX**

**WASTE DISCHARGE REQUIREMENTS
FOR THE CITY OF TURLOCK,
REGIONAL WATER QUALITY CONTROL FACILITY, STANISLAUS COUNTY**

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

Table 1. Discharger Information

Discharger:	City of Turlock
Name of Facility:	Regional Water Quality Control Facility
Facility Street Address:	901 S. Walnut Road
Facility City, State, Zip:	Turlock, CA 95380
Facility County:	Stanislaus County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	37° 27' 46"	121° 01' 57"	San Joaquin River
003	Treated Municipal Wastewater	37° 29' 59.6"	120° 55' 18.5"	Turlock Irrigation District, Upper Lateral 4

Table 3. Administrative Information

This Order was Adopted on:	XX February 2021
This Order shall become effective on:	XX Month 2021
This Order shall expire on:	XX Month 2021
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:	XX Month 20XX
The United States Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Major discharge

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

PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the City of Turlock, Regional Water Quality 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. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDR's in this Order.
- B. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of Public Resources Code. Additionally, the adoption of Title 22 water reclamation requirements for the Facility constituents permitting of an existing facility that is categorically exempt from the provisions of CEQA pursuant to California Code of Regulations (CCR), title 14, section 15301.
- C. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.
- D. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C.6.a are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- E. Monitoring and Reporting.** 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements.

The Monitoring and Reporting Program is provided in Attachment E.

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

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

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

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

THEREFORE, IT IS HEREBY ORDERED that Order R5-2015-0027-01 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 – San Joaquin River.** When discharging to the San Joaquin River at Discharge Point 001, as described in Table E-1 of this Order's Monitoring and Reporting Program, discharges exceeding an average dry weather flow of 20 million gallons per day (MGD) are prohibited.
- F. **Annual Average Flow – Turlock Irrigation District (TID) Upper Lateral 4.** When discharging to the TID Upper Lateral 4 at Discharge Point 003, as described in Table E-1 of this Order's Monitoring and Reporting Program, discharges exceeding an annual average flow of 2,033 acre-feet, or outside of 1 March through 31 October are prohibited.
- G. **Surface Water Discharge to TID Upper Lateral 4 (Discharge Point 003).** Discharge to TID Upper Lateral 4 (Discharge Point 003) is prohibited until Discharge Point 003 is approved by the Executive Officer in accordance with Special Provision VI.C.6.b. As discuss in Special Provision VI.C.6.b, the surface water discharge to the TID Upper Lateral 4 is not approved or in effect until, at its own discretion, the TID Board of Directors takes action to accept tertiary recycled water from the Facility, the Discharger requests subsequent approval from the Executive Officer, and the Executive Officer approves Discharge Point 003 and authorizes initiation of the discharge in writing.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations

1. Final Effluent Limitations – Discharge Points 001 and 003– San Joaquin River and TID Upper Lateral 4

When discharging to the San Joaquin River and/or the TID Upper Lateral 4, at Discharge Points 001 and 003, respectively, the Discharger shall maintain compliance with the following effluent limitations applicable to each Discharge Point as specified below. Unless otherwise specified, compliance shall be measured at Monitoring Location EFF-001, as described in the Monitoring and Reporting Program, Attachment E:

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

Table 4. Effluent Limitations – Discharge Points 001 and 003 – San Joaquin River and TID Upper Lateral 4

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily	Discharge Point(s)
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celcius	milligrams per liter (mg/L)	10	15	--	001, 003
Total Suspended Solids (TSS)	mg/L	10	15	--	001, 003
Chlorodibromomethane	micrograms per liter (µg/L)	43	--	73	001
Dichlorobromomethane	µg/L	46	--	74	001
Chlorodibromomethane	µg/L	36	--	63	003
Dichlorobromomethane	µg/L	57	--	91	003
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	1.3	3.7	--	001
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	2.2	6.8	--	001
Nitrate plus Nitrite	mg/L	10	13	--	001, 003

- b. **pH (Discharge Points 001 and 003):**
 - i. 6.5 Standard Units (SU) as an instantaneous minimum.
 - ii. 8.5 SU as an instantaneous maximum.
- c. **Percent Removal (Discharge Points 001 and 003):** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 85 percent.
- d. **Acute Whole Effluent Toxicity (Discharge Point 001).** 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. **Total Residual Chlorine (Discharge Point 001).** 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.
- f. **Total Coliform Organisms (Discharge Points 001 and 003).** Effluent total coliform organisms shall not exceed the following with compliance measured at Monitoring Location TCO-001 as described in the MRP, Attachment E:

- i. 2.2 most probable number per 100 milliliters (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.
- g. **Diazinon and Chlorpyrifos (Discharge Point 001)**
- i. Average Monthly Effluent Limitation
$$S(\text{AMEL}) = C_d (\text{M-avg})/0.079 + C_c (\text{M-avg})/0.012 \leq 1.0$$

$C_{D \text{ M-AVG}}$ = average monthly diazinon effluent concentration in $\mu\text{g/L}$.
 $C_{C \text{ M-AVG}}$ = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$.
 - ii. Average Weekly Effluent Limitation
$$S(\text{AWEL}) = C_d (\text{W-avg})/0.14 + C_c (\text{W-avg})/0.021 \leq 1.0$$

$C_{D \text{ W-AVG}}$ = average weekly diazinon effluent concentration in $\mu\text{g/L}$.
 $C_{C \text{ W-AVG}}$ = average weekly chlorpyrifos effluent concentration in $\mu\text{g/L}$.
- h. **Mercury, total (Discharge Point 001).** For a calendar year, the total annual mass discharge of total mercury shall not exceed 0.82 pounds/year (lbs/year).
- i. **Electrical Conductivity (Discharge Points 001 and 003).** The effluent electrical conductivity shall not exceed 1,250 $\mu\text{mhos/cm}$ as an annual average.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications

1. Wastewater used for reclamation shall be treated such that it complies with Title 22 CCR, Section 60301.230 (“*Disinfected Tertiary Recycled Water*”).
2. Public contact with the reclaimed water shall be precluded or controlled through such means as fences, signs, or other acceptable alternatives.
3. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities, and these shall

be of a type, or secured in a manner, that permit operation by authorized personnel only.

4. Reclaimed water shall be used in compliance with Title 22, Division 4, Chapter 3, Article 3, *Uses of Recycled Water* and this Order.
5. The production, distribution, and use of recycled water shall conform to an Engineering Report prepared pursuant to Title 22, section 60323 and approved by the Division of Drinking Water.
6. The Discharger shall maintain compliance with the following limitations, with compliance measured at Monitoring Location REC-001 as described in the attached MRP.
 - a. **Total Coliform Organisms.** Recycled water total coliforms shall not exceed:
 1. 2.2 MPN/100 mL, as a 7-day median;
 2. 23 MPN/100 mL, more than once in any 30-day period; and
 3. 240 MPN/100 mL for any single sample.
 - b. **Turbidity.** Effluent turbidity shall not exceed any of the following:
 1. An average of 2 NTU within a 24-hour period;
 2. 5 NTU more than 5 percent of the time within a 24-hour period; and
 3. 10 NTU at any time.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations – San Joaquin River

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

1. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
2. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
3. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
4. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95-percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

5. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
6. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
7. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
8. **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.
9. **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.

10. **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.
11. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
12. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
13. **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.
14. **Temperature.** The natural temperature to be increased by more than 5° Fahrenheit. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
15. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
16. **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. Surface Water Limitations – TID Upper Lateral 4

The discharge shall not cause the following in the TID Upper Lateral 4:

1. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
2. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
3. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
4. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water; nor
 - b. The 95-percentile dissolved oxygen concentration to fall below 75 percent of saturation.
5. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
6. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
7. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
8. **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.
9. **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.

- 10. **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.
- 11. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
- 12. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
- 13. **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.
- 18. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, or animal life.
- 19. **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.

C. Groundwater Limitations

Release of waste constituents from any storage, treatment, or disposal component associated with the Facility, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality or water quality objectives, whichever is greater. The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably impact beneficial uses, or cause pollution or nuisance.

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.

- I. 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. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit shall continue in force and effect until the permit is reissued or the Regional Water Board rescinds the permit.
- q. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

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

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened, and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened

- to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.
 - e. **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 WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
 - f. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the [Central Valley Salinity Alternatives for Long-Term Sustainability \(CV-SALTS\) web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/):
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)
 - g. **North Valley Regional Recycled Water Program.** Separate Order R5-2016-0010 (NPDES Permit No. CA0085316) issued to the City of Turlock and City of Modesto currently regulates the combined surface water discharge from the Facility and the City of Modesto Water Quality Control Facility to the Delta Mendota Canal. Order R5-2016-0010 expires 31 March 2021 and this Order may be reopened to incorporate the necessary requirements to regulate the discharge from the Facility to the DMC via the North Valley Regional Recycled Water Program rather than renew Order R5-2016-0010.
 - h. **Bay-Delta Plan.** On 25 February 2019, the California Office of Administrative Law approved the 2018 Bay-Delta Plan amendments, which include a numeric water quality objective (WQO) for the San Joaquin River at Vernalis of 1,000 $\mu\text{mhos/cm}$ maximum, year-round, applied as a 30-day running average of mean daily electrical conductivity. Once approved by the United States Environmental Protection Agency (USEPA), the revised WQO will be applicable to the San Joaquin River at

Vernalis. This Order may be amended or modified to implement the Bay-Delta Plan WQO's.

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 above 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/EC₂₅) OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, if the result is greater than 1.3 TUc (as 100/EC₂₅) AND the percent effect is greater than or equal to 25 percent at 100 percent effluent, proceed to step (b).
- (b) **Evaluate 6-week Median.** The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 1.3 TUc (as 100/EC₂₅) and the percent effect is greater than 25 percent at 100 percent effluent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring. See Compliance

Determination Section VII.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:
- (1) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
- Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.

3. Best Management Practices and Pollution Prevention

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

minimization plan and provide a summary with the Report of Waste Discharge.

4. Construction, Operation and Maintenance Specifications

- a. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- b. **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 at Monitoring Location FIL-001 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.
- c. **Emergency Storage Basin Operating Requirements.** When discharges to the emergency storage basin occur, the Discharger shall ensure compliance with the following operation and maintenance requirements:
 - i. Objectionable odors originating at the Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
 - ii. The emergency storage basin 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. Vegetation, debris, and dead algae shall not accumulate on the water surface.
 - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
 - iii. Public contact with wastewater shall be precluded through such means as fences, signed, and other acceptable alternatives.
 - iv. Freeboard in the emergency storage basin shall not be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the emergency storage basin, no overflow of the emergency storage basin occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year

recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

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

a. Pretreatment Requirements

- i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. Part 403, including any subsequent regulatory revisions to 40 C.F.R. Part 403. Where 40 C.F.R. Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.
- ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.
- iii. The Discharger shall perform the pretreatment functions as required in 40 C.F.R. Part 403 including, but not limited to:
 - (a) Implement the necessary legal authorities as provided in 40 CFR Part 403.8(f)(1);
 - (b) Enforce the pretreatment requirements under 40 C.F.R. sections 403.5 and 403.6;
 - (c) Implement the programmatic functions as provided in 40 C.F.R. section 403.8(f)(2); and
 - (d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. section 403.8(f)(3).
- iv. **Pretreatment Reporting Requirements.** Pretreatment reporting requirements and due dates are included in in the Technical Reports Table (Attachment E, Section X.D.5).

- 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 included 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.

v. **Biosolids Storage Requirements**

- (a) Facilities for the storage of Class B biosolids shall be located, designed, and maintained to restrict public access to biosolids.
- (b) Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- (c) Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.
- (d) Biosolids storage facilities shall be designed, maintained, and operated to minimize the generation of leachate.

- c. **Resource Recovery from Anaerobically Digestible Material.** The Discharger receives hauled-in anaerobically digestible material for injection into an anaerobic digester. The Discharger shall update and implement Standard Operating Procedures for this activity as specified in the Technical Reports Table (Table E-13). The Standard Operating Procedures shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the Standard Operating Procedures shall address avoidance of the introduction of materials that could cause interference, pass-through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall train its staff on the Standard Operating Procedures and shall maintain records for a minimum of five years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of five years for the disposition, location, and quantity of cumulative pre-digestion-segregated solid waste hauled off-site.

6. Other Special Provisions

- a. **Title 22, or Equivalent, Disinfection Requirements.** Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the State Water Board, Division of Drinking Water (DDW) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.
- b. **Authorization of Surface Water Discharge to TID Upper Lateral 4 (Discharge Point 003).** The surface water discharge to the TID Upper Lateral 4 (Discharge Point 003) is not approved or in effect until; 1) TID Board of Directors, at its own discretion, takes action to accept tertiary recycled water from the Facility, 2) the Discharger requests approval from

the Executive Officer that includes documentation that TID has taken action to accept tertiary recycled water from the Facility, and 3) the Executive Officer approves Discharge Point 003 and authorizes initiation of the discharge at Discharge Point 003 in writing.

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

A. Effluent Limitations for All Parameters (Section IV.A.1). Effluent limitations apply during periods when discharging at Discharge Point 001 and/or 003. To evaluate compliance with the final effluent limitations for all parameters required in Waste Discharge Requirements section IV.A.1, samples shall be collected at monitoring location EFF-001 and the results reported at the monitoring location for the respective Discharge Location as described in Table E-1

The Discharger is collecting routine compliance monitoring data at EFF-001 for its continuous discharge to the Delta Mendota Canal under NPDES Permit number CA0085316 (Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements). Because discharges at Discharge Point 001 and 003 are intermittent, collecting compliance samples at EFF-001 specifically during short-durations and unanticipated discharge events may not be feasible. For evaluating compliance with maximum daily effluent limitations, average weekly effluent limitations, average monthly effluent limitations, and annual average effluent limitations applicable to Discharge Points 001 and/or 003, effluent samples may be collected at Monitoring Location EFF-001 during a particular time when the discharge is not occurring at Discharge Points 001 and/or 003, yet the samples must be collected within the same monitoring period specified in Attachment E (Table E-3) that discharge at Discharge points 001 and/or 003 occurred; these results will be used to calculate the maximum daily, average weekly, average monthly, and/or annual average effluent concentrations. For example, if the discharge occurs to the San Joaquin River (Discharge Point 001) for the first four days of a month, all average monthly effluent limitations are applicable to the discharge. Effluent samples collected at EFF-001 during that 4-day period and samples collected at EFF-001 while discharging to the TID Upper Lateral 4 (Discharge Point 003) and/or while discharging to the Delta Mendota Canal (Discharge Point 002) per NPDES Permit number CA0085316 (Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements), during the month will be used to calculate the average monthly effluent concentration to evaluate compliance with the average monthly effluent limitation for the discharge to the San Joaquin River.

When surface water discharge is occurring at multiple Discharge Locations during a monitoring period, effluent violations at multiple Discharge Points could result using the same sample results. For example, in the average monthly effluent limitation example discussed above, the same average monthly effluent concentration would be used to evaluate compliance with the average monthly effluent limitations for the TID Upper Lateral 4 (Discharge Point 003) and the San Joaquin River (Discharge Point 001), which if the effluent limitations are exceeded could result in effluent violations for each discharge location.

- B. BOD₅ and TSS Effluent Limitations (Section IV.A.1.a).** Compliance with the final effluent limitations for BOD₅ 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.a for percent removal shall be calculated using the arithmetic mean of BOD₅ 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.
- C. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.h).** The procedures for calculating mass loadings are as follows:
1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.
 2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.
- D Effluent Flow Prohibition – San Joaquin River (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).
- E. Total Coliform Organisms Effluent Limitations (Section IV.A.1.f).** 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 a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance. For evaluating compliance with the 7-day median effluent limitation when the discharge to the San Joaquin River occurs for less than seven consecutive days, the 7-day median will be calculated once using all effluent samples collected at EFF-001 when discharging to the San Joaquin River (Discharge Point 001) and/or when discharging to the Delta Mendota Canal (Discharge Point 002) per NPDES Permit number CA0085316 (Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements), during the 7-day period ending on the date the discharge to the San Joaquin River ceases back seven days. For example, if the discharge occurs to the San Joaquin River for five consecutive days starting on a Saturday and ending on a Wednesday, the result collected at EFF-001 from the sampling event on

Wednesday and all results from the previous 6 days that there was discharge to either the San Joaquin River or the Delta Mendota Canal (i.e., Tuesday, Monday, Sunday, and Saturday, while discharging to the San Joaquin River, and from Friday and Thursday while discharging to the Delta Mendota Canal) are used to calculate the 7-day median.

- F. Total Residual Chlorine Effluent Limitations (Section IV.A.1.e).** 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).

- 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. sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
 - b. sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
 3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall

compute the median in place of the arithmetic mean in accordance with the following procedure:

- a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall **not** be deemed out of compliance.

H. Dissolved Oxygen Receiving Water Limitation (Section V.A.4.a-c). The Facility provides a high level of treatment including tertiary filtration, nitrification, and denitrification, which results in minimal dissolved oxygen impacts in the receiving water. Weekly receiving water monitoring is required in the Monitoring and Reporting Program (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this Order. Weekly receiving water monitoring data, measured at monitoring locations RSW-001 and RSW-002, will be used to determine compliance with part “c” of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in the San Joaquin River to be reduced below 5.0 mg/L at any time. However, should more frequent dissolved oxygen and temperature receiving water monitoring be conducted, Central Valley Water Board staff may evaluate compliance with parts “a” and “b”.

I. Chronic Whole Effluent Toxicity Effluent Trigger (Section VI.C.2.a.ii). To evaluate compliance with the chronic whole effluent toxicity effluent trigger, the median chronic toxicity units (TUc) shall be the median of up to three consecutive chronic toxicity bioassays during a six- week period. This includes a routine chronic toxicity monitoring event and two subsequent optional compliance monitoring events. If additional compliance monitoring events are not conducted, the median is equal to the result for routine chronic toxicity monitoring event. If only one additional compliance monitoring event is conducted, the median will be established as the arithmetic mean of the routine monitoring event and compliance monitoring event.

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

chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent trigger.

ATTACHMENT A – DEFINITIONS

1Q10

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

7Q10

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

Arithmetic Mean (μ)

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

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

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

Average Monthly Effluent Limitation (AMEL)

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

Average Weekly Effluent Limitation (AWEL)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with

limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

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

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

Detected, but Not Quantified (DNQ)

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

Dilution Credit

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

Effect Concentration (EC)

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

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not

limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Endpoint

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

Estimated Chemical Concentration

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

Estuaries

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

Inhibition Concentration

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

Inland Surface Waters

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

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Maximum Daily Effluent Limitation (MDEL)

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

the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median

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

Method Detection Limit (MDL)

MDL is the minimum measured concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in 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:

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

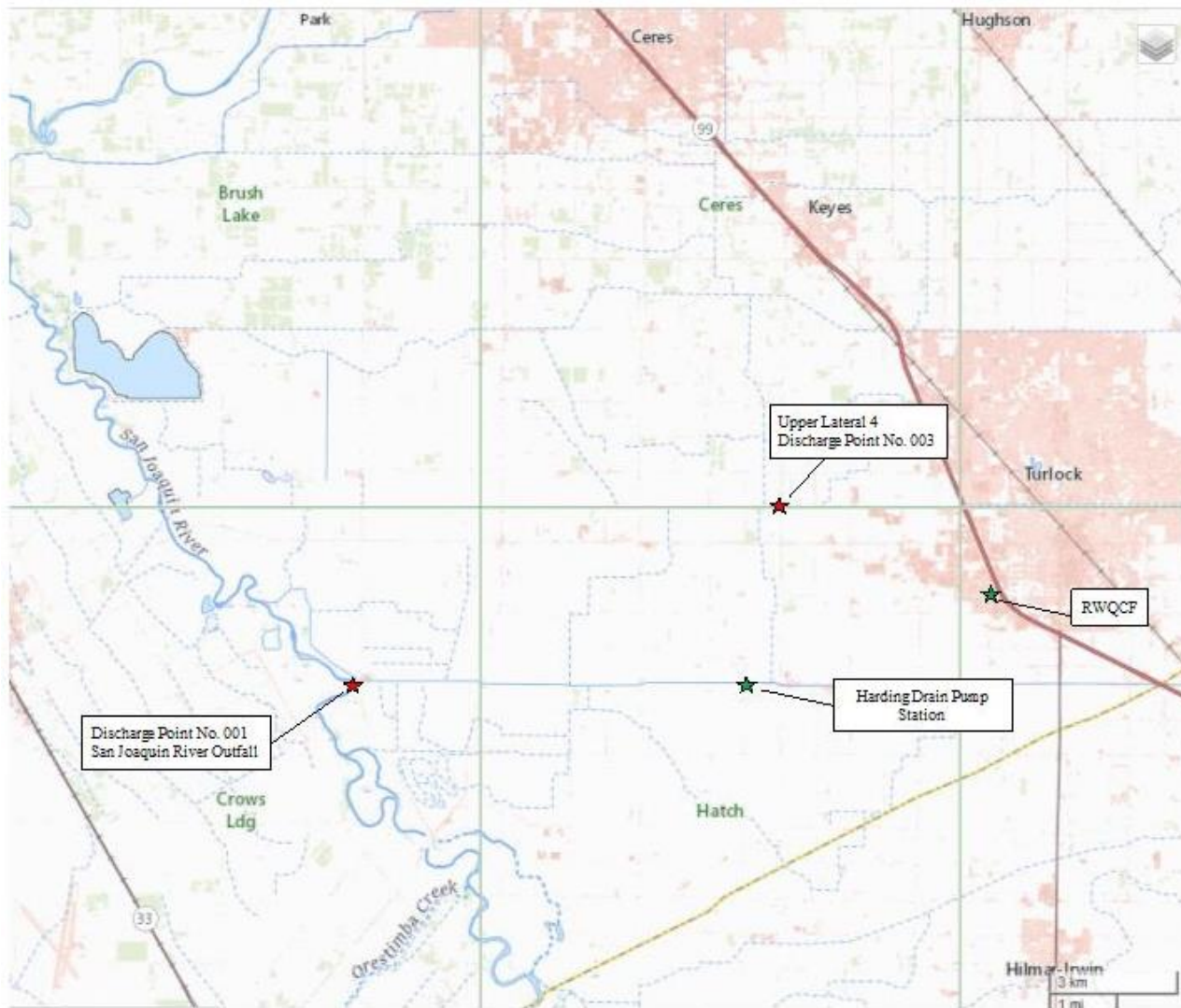
where:

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

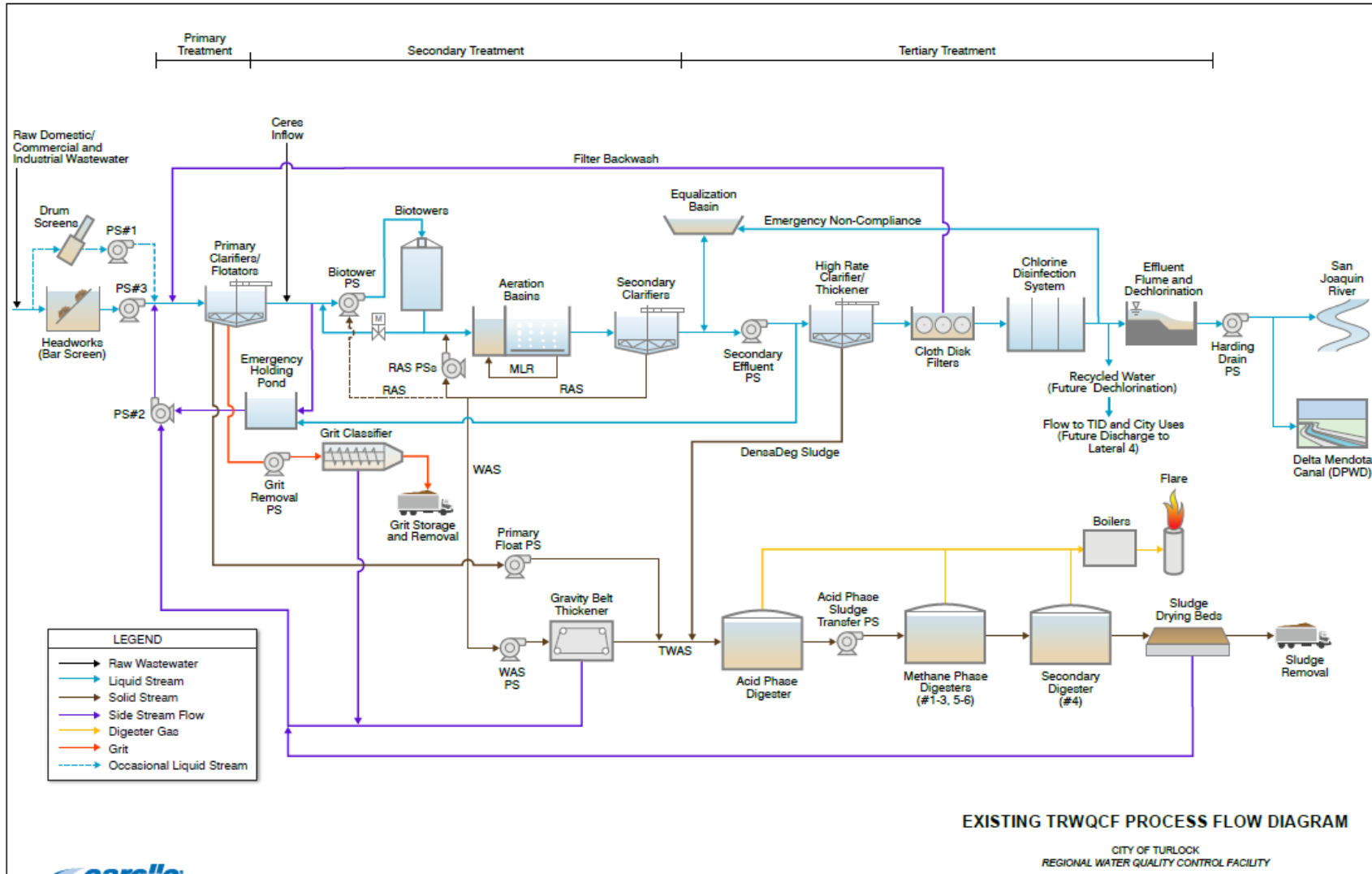
Toxicity Reduction Evaluation (TRE)

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



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply:

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. section 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. section 122.5(c).)

F. Inspection and Entry

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

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

G. Bypass

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

- essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. section 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. section 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. section 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. section 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. section 122.41(m)(4)(i)(C).)
 4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. section 122.41(m)(4)(ii).)
 5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice if possible, at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board’s [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(i).)
 - b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board’s [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(ii).)

H. Upset

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

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

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

J. Initial Recipient for Electronic Reporting Data

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

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 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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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

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

- E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F. Laboratory analytical methods shall be sufficiently sensitive in accordance with the Sufficiently Sensitive Methods Rule (SSM Rule) specified under 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). A U.S. EPA-approved analytical method is sufficiently sensitive for a pollutant/parameter where:
 - 1. The method minimum level (ML) is at or below the applicable water quality objective for the receiving water, or;
 - 2. The method ML is above the applicable water quality objective for the receiving water but the amount of the pollutant/parameter in the discharge is high enough that the method detects and quantifies the level of the pollutant/parameter, or;
 - 3. the method ML is above the applicable water quality objective for the receiving water, but the ML is the lowest of the 40 C.F.R. 136 U.S. EPA-approved analytical methods for the pollutant/parameter.
- G. The Discharger shall ensure that the results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Resources Control Board at the following address:

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.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being discharged into the San Joaquin River. When discharging at Discharge Point 001 the results shall be reported as EFF-001B.
003	EFF-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being discharged into the TID Upper Lateral 4. When discharging at Discharge Point 003 the results shall be reported as EFF-001C.
--	PND-001	A location where a representative sample of the contents of the Emergency Storage Basin can be collected.
--	RSW-001	San Joaquin River 1,800 feet upstream of Discharge Point 001.
--	RSW-002	San Joaquin River downstream of Discharge Point 001 and 50 feet above the confluence with Harding Drain.
--	TID-001	TID Upper Lateral 4 100 feet upstream of Discharge Point 003.
--	TID-002	TID Upper Lateral 4 100 feet downstream of Discharge Point 003.
--	BIO-001	A location where a representative sample of the biosolids can be collected.
001, 003	TCO-001	A location immediately following chlorine disinfection where a representative sample for the effluent total coliform organisms can be collected.
--	REC-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being used for reclamation.
--	SPL-001	A location where a representative sample of the municipal water supply can be collected.

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	1/Day
Biochemical Oxygen Demand (5-day @ 20°Celcius)	mg/L	24-hour Composite	3/Week
Total Suspended Solids	mg/L	24-hour Composite	3/Week
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week

2. **Table E-2 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-2:
 - a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. All grab samples shall not be collected at the same time each day to get a complete representation of variations in the influent.
 - c. All composite samples shall be collected from a 24-hour flow proportional composite.
 - d. A hand-held field meter may be used for **electrical conductivity** and **pH**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Requirements - Discharge Points 001 and 003 - Monitoring Location EFF-001 – San Joaquin River and TID Upper Lateral 4

1. When discharging to the San Joaquin River at Discharge Point 001 and/or to the TID Upper Lateral 4 at Discharge Point 003 the Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001 in accordance with Table E-3 and the testing requirements described in section IV.A.2 below. Monitoring performed by the Discharger for compliance with its Waste Discharge Requirements for the discharge to the Delta Mendota Canal via the North Valley Regional Recycled Water Program Joint Outfall (NPDES Permit number CA0085316, Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements) may be used to meet these monitoring requirements. In the event that effluent samples for monitoring the Delta Mendota Canal discharge were not collected on the same day(s) that discharge to the San Joaquin River or Upper Lateral 4 occurred, this data can be used by the Discharger to meet the monitoring requirements of Table E-3 if the effluent samples were collected within the same monitoring period (e.g., within the same month, quarter, etc.). The sample results shall be reported as specified below:

Table E-3. Effluent Monitoring

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency	Discharge Point
Flow	MGD	Calculated	Continuous	001, 003
Biochemical Oxygen Demand (BOD) 5-day @ 20°Celcius	mg/L	24-hour Composite	3/Week	001, 003
BOD	% removal	Calculate	3/Week	001, 003
Total Suspended Solids (TSS)	mg/L	24-hour Composite	3/Week	001, 003
TSS	% removal	Calculate	3/Week	001, 003
pH	standard units	Meter	Continuous	001, 003
Dissolved Oxygen	mg/L	Grab	1/Week	001, 003
Chlorodibromomethane	µg/L	Grab	1/Month	001, 003
Dichlorobromomethane	µg/L	Grab	1/Month	001, 003
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week	001
Chlorine, Total Residual	mg/L	Meter	Continuous	001
Chlorpyrifos	µg/L	Grab	1/Year	001
Diazinon	µg/L	Grab	1/Year	001
Electrical Conductivity @ 25°Celcius	µmhos/cm	Grab	1/Week	001, 003
Hardness, Total (as CaCO3)	mg/L	24-hour Composite	1/Quarter	001, 003
Mercury, Total Recoverable	µg/L	Grab	1/Quarter	001

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency	Discharge Point
Nitrate plus Nitrite, Total (as N)	mg/L	24-hour Composite	1/Month	001, 003
Temperature	°F	Grab	1/Week	001
Total Coliform Organisms	MPN/100 mL	Grab	1/Day	001, 003
Turbidity	NTU	Meter	Continuous	001, 003

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. All sampling shall be conducted at monitoring location EFF-001 and reported at the monitoring location representing the respective Discharge Location as defined in Table E-1.
 - b. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. **24-hour composite samples** shall be collected from a 24-hour flow proportional composite.
 - c. A hand-held field meter may be used for **electrical conductivity, dissolved oxygen, temperature** and **pH**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
 - d. **Temperature** and **pH** shall be recorded at the time of **ammonia** sample collection.
 - 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. **Total Mercury and Methyl Mercury.** Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2). The analysis of methyl mercury and total mercury shall be by U.S. EPA method 1630 and 1631 (Revision E), respectively, with a reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury.

- g. **Total Coliform Organisms.** Samples for total coliform organisms shall be collected at Monitoring Location TCO-001, a sample point immediately following chlorine disinfection.
- h. **Priority Pollutants.** For all priority pollutant constituents listed in Table E-3 (Chlorodibromomethane and Dichlorobromomethane) 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 (State Implementation Policy or SIP) and the SSM Rule specified under 40 C.F.R. sections 122.21(e)(3) and 122.4(i)(1)(iv).
- i. **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.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. When discharging to the San Joaquin River, 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. Acute toxicity testing performed by the Discharger for compliance with Waste Discharge Requirements for the discharge to the Delta Mendota Canal via the North Valley Regional Recycled Water Program Joint Outfall (NPDES Permit number CA0085316, Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements) may be used to meet this monitoring requirement. In the event that effluent samples for monitoring the Delta Mendota Canal discharge were not collected on the same day that discharge to the San Joaquin River occurred, this data can be used by the Discharger to meet the acute toxicity monitoring requirement if the effluent samples were collected within the same monitoring period (i.e., within the same quarter).
2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.
3. **Test Species** – Test species shall be fathead minnows (*Pimephales promelas*).
4. **Methods** – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH

shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

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

1. **Monitoring Frequency** – When discharging to the San Joaquin River, the Discharger shall perform routine quarterly chronic toxicity testing. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TUc (as 100/EC₂₅ AND a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and perform chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at least one week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity. See Compliance Determination section VII.I for procedures for calculating 6-week median. Chronic toxicity testing performed by the Discharger for compliance with Waste Discharge Requirements) for the discharge to the Delta Mendota Canal via the North Valley Regional Recycled Water Program Joint Outfall (NPDES Permit number CA0085316, Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements) may be used to meet this monitoring requirement. In the event that effluent samples for monitoring the Delta Mendota Canal discharge were not collected on the same day(s) that discharge to the San Joaquin River occurred, this data can be used by the Discharger to meet the chronic toxicity monitoring requirement if the effluent samples were collected within the same monitoring period (e.g., within the same quarter).
2. **Sample Types** – Effluent samples shall be composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.
3. **Sample Volumes** – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. **Test Species** – The testing shall be conducted using the most sensitive species. The Discharger shall conduct chronic toxicity tests with the cladoceran, water flea, *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.

6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. **Dilutions** – For routine and compliance chronic toxicity monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

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

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

C. WET Testing Notification Requirements. The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or follow-up 6-week median monitoring, or an exceedance of the acute toxicity effluent limitation.

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

1. **Chronic WET Reporting.** Routine 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 quarterly, self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUC, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, TES, or TRE monitoring.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

E. Most Sensitive Species Screening. The Discharger shall perform rescreening to re-evaluate the most sensitive species if there is a significant change in the nature of the discharge. If there are no significant changes during the permit term, a rescreening must be performed prior to permit reissuance and results submitted with the Report of Waste Discharge. Chronic toxicity testing performed by the Discharger for compliance with Waste Discharge Requirements for the discharge to the Delta Mendota Canal via the North Valley Regional Recycled Water Program Joint Outfall (NPDES Permit number CA0085316, Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements) may be used to meet this monitoring requirement. In the event that effluent samples for monitoring the Delta Mendota Canal discharge were not collected on the same day(s) that discharge to the San Joaquin River occurred, the Discharger can use this data if the effluent samples were collected within the same monitoring period (i.e., within the same quarter).

1. **Frequency of Testing for Species Sensitivity Screening.** Species sensitivity screening for chronic toxicity shall include, at a minimum, chronic WET testing four consecutive calendar quarters using the water flea (*Ceriodaphnia dubia*),

fathead minnow (*Pimephales promelas*), and green 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 sensitive re-screening testing and the most sensitive species will remain unchanged.

2. **Determination of Most Sensitive Species.** The Discharger shall determine the most sensitive species by performing, at minimum, one calendar year of chronic WET testing at a frequency of once per quarter using all three test species specified above. The tests shall be performed using 100 percent effluent and one control. 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 of 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 25 percent, then the single species that exhibits the highest percent effect shall be established as the most sensitive species. In all other circumstances, including where documented issues with the sample analysis or related to the sample analysis prevent a clear selection of the most sensitive species, 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. POND MONITORING REQUIREMENTS

A. Monitoring Location PND-001

1. The Discharger shall monitor the emergency storage basin (when in use) at PND-001 in accordance with Table E-5 below:

Table E-5. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Freeboard	Feet	Measured	1/Week
Levee Condition	--	Observation	1/Week
Odors	--	Observation	1/Week
Flow to Basin	Million Gallons/Event	Calculated	1/Event

VII. RECYCLING MONITORING REQUIREMENTS

A. Monitoring Location REC-001

1. The Discharger shall monitor reclaimed water at Monitoring Locations REC-001 in accordance with Table E-6 below:

Table E-6. Recycled Water Monitoring Requirements

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

2. **Table E-6 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-6:
 - a. Applicable to all parameters. Parameters shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. **Total Coliform Organisms.** Samples for total coliform organisms shall be collected at Monitoring Location TCO-001, a sample point immediately after chlorine disinfection.

B. Recycled Water Use Area Monitoring Requirements

1. The Discharger shall monitor use areas at a frequency appropriate to determine compliance with this Order and the Discharger’s recycled water use program requirements. The Discharger may assign monitoring responsibility to ensure the data is collected, as well as prepare and submit the annual report.

The following shall be recorded for each user with additional reporting for use areas as appropriate. The frequency of use area inspections shall be based on the complexity and risk of each use area. Use area monitoring shall be conducted in accordance with Table E-7 and the testing requirements described in section VII.B.2 below:

Table E-7. Recycled Water Monitoring Requirements

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Recycled Water User	--	--	--	Annually
Recycled Water Flow	MGD	Meter	Continuous	Annually
Acreage Applied	acres	Calculated	--	Annually
Application Rate	inches/acre/year	Calculated	--	Annually
Soil Saturation/Ponding	--	Observation	Quarterly	Annually
Nuisance Odors/Vectors	--	Observation	Quarterly	Annually
Discharge Off-Site	--	Observation	Quarterly	Annually
Notification Signs	--	Observation	Quarterly	Annually

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. **Meter Sample Type** requires meter reading a pump runtime, or other approved method.
 - b. **Acreage Applied** denotes the acreage to which recycled water is applied.
 - c. **Notification Signs** shall be consistent with the requirements of Title 22 section 60310 (g).
 - d. **Sampling Frequency.** Sampling shall be conducted at the frequency shown in Table E-7 or less frequently if approved by the Central Valley Regional Water Board Executive Officer.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Discharge Point 001 – San Joaquin River - Monitoring Location RSW-001 and RSW-002

- 1. When discharging continuously for a period of 72-hours or more to Discharge Point 001 in the San Joaquin River, the Discharger shall monitor the San Joaquin River at Monitoring Locations RSW-001 and RSW-002 in accordance with Table E-8 and the testing requirements described in section VIII.A.2 below.

Table E-8. Receiving Water Monitoring Requirements

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

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.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. Constituents with weekly sampling frequency may be reduced to monthly at RSW-001 when the San Joaquin River is at “monitor stage” (river elevation is at 48.0 feet (15,242 cfs) at the SJP gauging station) and all monitoring is not required while the San Joaquin River is at “flood stage” (river elevation is at 54.7 feet at the SJP gauging station).
 - c. A hand-held field meter may be used for **dissolved oxygen, turbidity, temperature, electrical conductivity, and pH**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002 when discharging to the San Joaquin River. Attention shall be given to the presence of:
 - a. Floating or suspended matter;
 - b. Discoloration;
 - c. Bottom deposits;
 - d. Aquatic life;
 - e. Visible films, sheens, or coatings;

- f. Fungi, slimes, or objectionable growths; and
- g. Potential nuisance conditions.

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

B. Discharge Point 003 – TID Upper Lateral 4 - Monitoring Locations TID-001 and TID-002.

- 1. When discharging to Discharge Point 003 in the TID Upper Lateral 4, the Discharger shall monitor the TID Upper Lateral 4 at Monitoring Locations TID-001 and TID-002 in accordance with Table E-9 and the testing requirements described in section B.2 below as follows:

Table E-9 Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	standard units	Grab	1/Week
Dissolved Oxygen	mg/L	Grab	1/Week
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week
Turbidity	NTU	Grab	1/Week

- 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.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. A hand-held field meter may be used for **dissolved oxygen, turbidity, temperature, electrical conductivity, and pH**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

- 1. Monitoring Location BIO-001.
 - a. A composite 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 (EPA publication SW-846), as required in 40 C.F.R. section 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in “100% dry weight” or “as is.”

B. Municipal Water Supply

1. Monitoring Location SPL-001.

- a. The Discharger shall monitor the municipal water supply at SPL-001 in accordance with Table E-10 and the testing requirements described in section IX.B.2. below.

Table E-10. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
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-10 Testing Requirements. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-10:

- a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
- b. If the water supply is from more than one source, the total dissolved solids and electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.
- c. Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

C. Effluent and Receiving Water Characterization

- 1. **Monitoring.** Quarterly samples shall be collected from the effluent (Monitoring Location EFF-001) and twice yearly samples shall be collected from the receiving water (Monitoring Locations RSW-001 and TID-001) 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.2) using sufficiently sensitive analytical methods and Reporting Levels per the SSM Rule specified in 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). The “Reporting Level” is synonymous with the “Method Minimum Level” described in

- the SSM Rule. Monitoring shall be conducted for one year beginning with the second quarter of 2022 and the results of such monitoring shall be submitted to the Central Valley Water Board with the monthly self-monitoring reports. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water. With approval from the Executive Officer, the sample timing can be adjusted so that the effluent samples can be used to fulfill sampling requirements for the Waste Discharge Requirements for the facility's discharge to the Delta Mendota Canal (NPDES Permit number CA0085316, Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements).
2. **Sample Type.** Effluent and receiving water samples shall be taken as described in Table E-11, below.
 3. **Analytical Methods Report Certification.** Prior to beginning the Effluent and Receiving Water Characterization monitoring, the Discharger shall provide a certification acknowledging the scheduled start date of the Effluent and Receiving Water Characterization monitoring and confirming that samples will be collected and analyzed as described in the previously submitted Analytical Methods Report. If there are changes to the previously submitted Analytical Methods Report, the Discharger shall outline those changes. A one-page certification form will be provided by Central Valley Water Board staff with the permit's Notice of Adoption that the Discharger can use to satisfy this requirement. The certification form shall be submitted electronically via CIWQS submittal by the due date in the Technical Reports Table.
 4. The Discharger shall conduct effluent and receiving water characterization monitoring in accordance with Table E-11 and the testing requirements described in section IX.C.5 below.

Table E-11. Effluent and Receiving Water Characterization Monitoring

VOLATILE ORGANICS

CTR Number	Volatile Organic Parameters	CAS Number	Units	Effluent Sample Type
25	2-Chloroethyl vinyl Ether	110-75-8	µg/L	Grab
17	Acrolein	107-02-8	µg/L	Grab
18	Acrylonitrile	107-13-1	µg/L	Grab
19	Benzene	71-43-2	µg/L	Grab
20	Bromoform	75-25-2	µg/L	Grab
21	Carbon Tetrachloride	56-23-5	µg/L	Grab
22	Chlorobenzene	108-90-7	µg/L	Grab
24	Chloroethane	75-00-3	µg/L	Grab
26	Chloroform	67-66-3	µg/L	Grab
35	Methyl Chloride	74-87-3	µg/L	Grab
23	Dibromochloromethane	124-48-1	µg/L	Grab
27	Dichlorobromomethane	75-27-4	µg/L	Grab
36	Methylene Chloride	75-09-2	µg/L	Grab
33	Ethylbenzene	100-41-4	µg/L	Grab
89	Hexachlorobutadiene	87-68-3	µg/L	Grab
34	Methyl Bromide (Bromomethane)	74-83-9	µg/L	Grab
94	Naphthalene	91-20-3	µg/L	Grab
38	Tetrachloroethylene (PCE)	127-18-4	µg/L	Grab
39	Toluene	108-88-3	µg/L	Grab
40	trans-1,2-Dichloroethylene	156-60-5	µg/L	Grab
43	Trichloroethylene (TCE)	79-01-6	µg/L	Grab
44	Vinyl Chloride	75-01-4	µg/L	Grab
21	Methyl-tert-butyl ether (MTBE)	1634-04-4	µg/L	Grab
41	1,1,1-Trichloroethane	71-55-6	µg/L	Grab
42	1,1,2-Trichloroethane	79-00-5	µg/L	Grab
28	1,1-Dichloroethane	75-34-3	µg/L	Grab
30	1,1-Dichloroethylene (DCE)	75-35-4	µg/L	Grab
31	1,2-Dichloropropane	78-87-5	µg/L	Grab
32	1,3-Dichloropropylene	542-75-6	µg/L	Grab
37	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	Grab
101	1,2,4-Trichlorobenzene	120-82-1	µg/L	Grab
29	1,2-Dichloroethane	107-06-2	µg/L	Grab
75	1,2-Dichlorobenzene	95-50-1	µg/L	Grab
76	1,3-Dichlorobenzene	541-73-1	µg/L	Grab
77	1,4-Dichlorobenzene	106-46-7	µg/L	Grab

SEMI-VOLATILE ORGANICS

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
60	Benzo(a)Anthracene	56-55-3	µg/L	Grab
85	1,2-Diphenylhydrazine	122-66-7	µg/L	Grab
45	2-Chlorophenol	95-57-8	µg/L	Grab
46	2,4-Dichlorophenol	120-83-2	µg/L	Grab
47	2,4-Dimethylphenol	105-67-9	µg/L	Grab
49	2,4-Dinitrophenol	51-28-5	µg/L	Grab
82	2,4-Dinitrotoluene	121-14-2	µg/L	Grab
55	2,4,6-Trichlorophenol	88-06-2	µg/L	Grab
83	2,6-Dinitrotoluene	606-20-2	µg/L	Grab
50	2-Nitrophenol	88-75-5	µg/L	Grab
71	2-Chloronaphthalene	91-58-7	µg/L	Grab
78	3,3-Dichlorobenzidine	91-94-1	µg/L	Grab
62	Benzo(b)Fluoranthene	205-99-2	µg/L	Grab
52	4-Chloro-3-methylphenol	59-50-7	µg/L	Grab
48	2-Methyl-4,6-Dinitrophenol	534-52-1	µg/L	Grab
51	4-Nitrophenol	100-02-7	µg/L	Grab
69	4-Bromophenyl Phenyl Ether	101-55-3	µg/L	Grab
72	4-Chlorophenyl Phenyl Ether	7005-72-3	µg/L	Grab
56	Acenaphthene	83-32-9	µg/L	Grab
57	Acenaphthylene	208-96-8	µg/L	Grab
58	Anthracene	120-12-7	µg/L	Grab
59	Benzidine	92-87-5	µg/L	Grab
61	Benzo(a)Pyrene	50-32-8	µg/L	Grab
63	Benzo(ghi)Perylene	191-24-2	µg/L	Grab
64	Benzo(k)Fluoranthene	207-08-9	µg/L	Grab
65	Bis (2-Chloroethoxy) Methane	111-91-1	µg/L	Grab
66	Bis (2-Chloroethyl) Ether	111-44-4	µg/L	Grab
67	Bis (2-Chloroisopropyl) Ether	108-60-1	µg/L	Grab
68	Bis(2-Ethylhexyl) Phthalate	117-81-7	µg/L	Grab
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab
73	Chrysene	218-01-9	µg/L	Grab
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab
79	Diethyl Phthalate	84-66-2	µg/L	Grab
80	Dimethyl Phthalate	131-11-3	µg/L	Grab
86	Fluoranthene	206-44-0	µg/L	Grab
87	Fluorene	86-73-7	µg/L	Grab
88	Hexachlorobenzene	118-74-1	µg/L	Grab
90	Hexachlorocyclopentadiene	77-47-4	µg/L	Grab
91	Hexachloroethane	67-72-1	µg/L	Grab

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
92	Indeno(1,2,3-cd) Pyrene	193-39-5	µg/L	Grab
93	Isophorone	78-59-1	µg/L	Grab
98	N-Nitrosodiphenylamine	86-30-6	µg/L	Grab
96	N-Nitrosodimethylamine	62-75-9	µg/L	Grab
97	N-Nitrosodi-n-Propylamine	621-64-7	µg/L	Grab
95	Nitrobenzene	98-95-3	µg/L	Grab
53	Pentachlorophenol (PCP)	87-86-5	µg/L	Grab
99	Phenanthrene	85-01-8	µg/L	Grab
54	Phenol	108-95-2	µg/L	Grab
100	Pyrene	129-00-0	µg/L	Grab

INORGANICS

CTR Number	Inorganic Parameters	CAS Number	Units	Effluent Sample Type
NL	Aluminum	7429-90-5	µg/L	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	7439-97-6	µg/L	Grab
NL	Mercury, Methyl	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
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
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
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
NL	pH	--	SU	Grab
NL	Temperature	--	°C	Grab

NON-CONVENTIONAL PARAMETERS

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

NUTRIENTS

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

OTHER CONSTITUENTS OF CONCERN

CTR Number	Other Constituents of Concern	CAS Number	Units	Effluent Sample Type
NL	1,2,3-Trichloropropane (TCP)	96-18-4	ug/L	Grab
NL	Trichlorofluoromethane	75-69-4	µg/L	Grab
NL	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	µg/L	Grab
NL	Styrene	100-42-5	µg/L	Grab
NL	Xylenes	1330-20-7	µg/L	Grab
NL	Barium	7440-39-3	µg/L	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

CTR Number	Other Constituents of Concern	CAS Number	Units	Effluent Sample Type
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	2921-88-2	µg/L	Grab
NL	Diazinon	333-41-5	µg/L	Grab

5. **Table E-11 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-13.
 - a. The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given quarter, as required in Tables E-3 and E-4, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.
 - b. All 24-hour composite samples shall be collected from a 24-hour flow proportional composite.
 - c. **Bis (2-ethylhexyl) phthalate.** In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.

B. Self-Monitoring Reports (SMRs)

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

Table E-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
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

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
1/Year	Permit effective date	1 January through 31 December	1 February of following year
1/Discharge Event	Permit effective date	All	Submit with Monthly SMR

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

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

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

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

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
- d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL, 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; 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 effluent monitoring per Table E-3 for chlorodibromomethane, dichlorobromomethane, mercury, chlorpyrifos, and diazinon monitored per section IV.A.1, Monitoring Location EFF-001. This requirement can be fulfilled by uploading the reports with SMRs for compliance with Waste Discharge Requirements for the facility’s discharge to the Delta Mendota Canal (NPDES Permit number CA0085316, Waste Discharge Requirements Order R5-2016-0010 and any revisions to or reissued Waste Discharge Requirements).

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. **Removal Efficiency (BOD₅ and TSS).** The Discharger shall calculate and report the percent removal of BOD₅ and TSS in the SMRs. The percent removal shall be calculated as specified in section VII.A. of the Limitations and Discharge Requirements.
 - c. **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.
 - d. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall report monthly in the self-monitoring report the dissolved oxygen concentrations in the effluent (EFF-001 and EFF-003) and the receiving water (RSW-001, RSW-002, TID-001, and TID-002).
 - e. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in section V.A.17.a-e. of the Waste Discharge Requirements.
 - f. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMR's)

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

D. Other Reports

1. **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 waste discharge requirements.
3. **Report of Waste Discharge (ROWD).** For the 5-year permit renewal, the Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing, at minimum, the following by the due date in the Technical Reports Table:
 - a. Report of Waste Discharge (Form 200);
 - b. NPDES Form 1;
 - c. NPDES Form 2A;
 - d. NPDES Form 2S;

- e. **Mixing Zone Requests.** A mixing zone analysis for constituents the Discharger is requesting the continuation of dilution credits and mixing zones in the calculation of water quality-based effluent limits (e.g., chlorodibromomethane and dichlorobromomethane); and
 - f. **Salinity Evaluation and Minimization Plan.** The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge.
4. **Annual Pretreatment Reporting Requirements.** The Discharger shall submit annually a report to the Central Valley Water Board, with copies to U.S. EPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

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

- a. A summary of analytical results from representative, 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

5. **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/) (<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) (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) (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.

6. **Groundwater Well Destruction Reports.** Prior to removal of any groundwater monitoring wells, the Discharge 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 and includes copies of the well abandonment permits issued by the Stanislaus County Department of Environmental Resources.

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

Table E-13. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Standard Reporting Requirements			
1	Report of Waste Discharge	1 April 2025	MRP X.D.3
2	Analytical Methods Report	XX April 2021	MRP X.D.1
3	Analytical Methods Report Certification	1 January 2022	MRP IX.C.3
4	Annual Operations Report	1 February 2022	MRP X.D.2
5	Annual Operations Report	1 February 2023	MRP X.D.2
6	Annual Operations Report	1 February 2024	MRP X.D.2
7	Annual Operations Report	1 February 2025	MRP X.D.2

Report #	Technical Report	Due Date	CIWQS Report Name
8	Annual Operations Report	1 February 2026	MRP X.D.2
Other Reports			
9	Annual Pretreatment Report	28 February 2022	MRP X.D.4
10	Annual Pretreatment Report	28 February 2023	MRP X.D.4
11	Annual Pretreatment Report	28 February 2024	MRP X.D.4
12	Annual Pretreatment Report	28 February 2025	MRP X.D.4
13	Annual Pretreatment Report	28 February 2026	MRP X.D.4
14	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2022	MRP X.D.5
15	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2023	MRP X.D.5
16	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2024	MRP X.D.5
17	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2025	MRP X.D.5
18	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2026	MRP X.D.5
19	Standard Operating Procedures for Resource Recovery from Anaerobically Digestible Material	1 October 2021	VI.C.5.c

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

Waste Discharge ID:	5C500108001
CIWQS Facility Place ID:	266737
Discharger:	City of Turlock
Name of Facility:	City of Turlock Regional Water Quality Control Facility
Facility Address:	901 S. Walnut Road
Facility City, State Zip:	Turlock, CA 95380
Facility County:	Stanislaus County
Facility Contact, Title and Phone Number:	David Huff, Water Quality Division Manager, (209) 668-5451
Authorized Person to Sign and Submit Reports:	David Huff, Water Quality Division Manager, (209) 668-5451
Mailing Address:	156 South Broadway Ave, Suite 270, Turlock, CA 95380
Billing Address:	Same as Mailing Address
Type of Facility:	Publicly Owned Treatment Works (POTW)
Major or Minor Facility:	Major
Threat to Water Quality:	1
Complexity:	A
Pretreatment Program:	Yes
Recycling Requirements:	Producer – 2.0 million gallons per day (MGD) of recycled water for cooling purposes to the Walnut Energy Center and an average of 100,000 GPD to Pedretti Sports Complex for turf irrigation.

Facility Permitted Flow:	20 MGD, average dry weather flow
Facility Design Flow:	20 MGD, average dry weather flow
Watershed:	Middle San Joaquin – Lower Merced – Lower Stanislaus
Receiving Water:	San Joaquin River and TID Upper Lateral 4
Receiving Water Type:	Inland surface water

- A.** The City of Turlock (hereinafter Discharger) is the owner and operator of the City of Turlock, Regional Water Quality 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 or waters of the United States, within the Middle San Joaquin-Lower Merced-Lower Stanislaus watershed. The Facility also proposes to discharge to the TID Upper Lateral 4, a waters of the United States. The Discharger was previously regulated by Order R5-2015-0027 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078948 adopted on 17 April 2015 and expired on 31 May 2020. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.
- C.** When applicable, state law requires dischargers to file a petition with the State Water Board, Division of Water Rights and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce any applicable requirements under Water Code section 1211. This is not an NPDES permit requirement.
- D.** The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDR’s) and NPDES permit on 10 October 2019.
- 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 Turlock and the community service districts of Denair and Keyes, and receives up to 2 MGD of primary treated effluent from the City of Ceres. The Facility serves a population of approximately 91,000. The design daily average flow capacity of the Facility is 20 million gallons per day (MGD).

A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system at the Facility consists of screening, grit removal, primary flotation, secondary treatment (activated sludge) for biochemical oxygen demand (BOD) reduction and nitrification/denitrification, secondary clarification, high rate clarification with chemical addition, tertiary treatment via cloth disk filters, chlorine disinfection and sodium bisulfite dechlorination. The wastewater facilities also include a 37.2 million gallon clay-lined emergency storage basin, which allows for the diversion and storage of primary effluent if necessary.

Solids handling consists of gravity belt thickener, anaerobic digestion, sludge drying beds and beneficial reuse of biosolids via land application to farmland.

The Discharger currently provides up to 2 MGD of recycled water for cooling purposes to the Walnut Energy Center, a 250 megawatt power plant owned and operated by the TID. The Discharger also provides an average of 100,000 gallons per day for irrigation purposes at the Pedretti Sports Complex. This Order regulates the use of recycled water.

B. Discharge Points and Receiving Waters

1. The Facility is located in section 21, T5S, R10E MDB&M, as shown in Attachment B, a part of this Order. The Facility's primary mode of disposal is discharge to the Delta Mendota Canal (DMC) via the North Valley Regional Recycled Water Program regulated by separate Order R5-2016-0010 (NPDES Permit No. CA0085316) issued to the City of Turlock and City of Modesto for the combined surface water discharge from the Facility and the City of Modesto Water Quality Control Facility to the Delta Mendota Canal. As described below, this Order authorizes discharges to the San Joaquin River at Discharge Point 001 and a new discharge location to the Turlock Irrigation District (TID) Upper Lateral 4 at Discharge Point 003. Since initiation of discharge to the DMC in March 2020, the Facility only discharges to the San Joaquin River on a temporary, as needed basis (e.g., when discharges to the DMC are not available due to maintenance). The new discharge to the TID Upper Lateral 4 is contingent upon the Discharger entering into a formal agreement with TID per Discharge Prohibition III.G and Special Provisions VI.C.6.b. The purpose of the new discharge to TID Upper Lateral 4 is to supply recycled water to augment irrigation supplies when there is demand within the TID service area from agricultural users within TID's canal

system during the irrigation season (1 March through 31 October) and is limited to a maximum of 2,033 acre-feet annually.

2. Tertiary treated municipal wastewater is discharged at Discharge Point 001 to the San Joaquin River, a water of the United States at a point latitude 37° 27' 46" N and longitude 121° 01' 57" W.
3. Tertiary treated municipal wastewater is permitted for discharge at Discharge Point 003 to the TID Upper Lateral 4, a water of the United States at a point latitude 37° 29' 59.6" N and longitude 120° 55' 18.5" W. Discharge to TID Upper Lateral 4 (Discharge Point 003) is prohibited per Discharge Prohibition III.G until Discharge Point 003 is approved by the Executive Officer in accordance with Special Provision VI.C.6.b. As required in Special Provision VI.C.6.b, the surface water discharge to the TID Upper Lateral 4 is not approved or in effect until, at its own discretion, the TID Board of Directors takes action to accept tertiary recycled water from the Facility, the Discharger requests subsequent approval from the Executive Officer, and the Executive Officer approves Discharge Point 003 and authorizes initiation of the discharge in writing

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data Effluent limitations contained in Order R5-2015-0027-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2015-0027-01 are as follows:

Table F-2. Historic Effluent Limitations (San Joaquin River)

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15 MDEL 20	4	4	8
Biochemical Oxygen Demand (5-day @ 20°C)	lbs/day (see table note 1 below)	AMEL 1,668 AWEL 2,502 MDEL 3,336	667	667	1,334
pH	std. units	Instantaneous Max 8.5 Instantaneous Min 6.5	--	--	Max 7.4 Min 6.6
Total Suspended Solids	mg/L	AMEL 10 AWEL 15 MDEL 20	9	10	12
Total Suspended Solids	lbs/day (see table note 1)	AMEL 1,668 AWEL 2,502 MDEL 3,336	1,500	1,668	2,000
Bis (2-ethylhexyl) Phthalate	µg/L	AMEL 30 MDEL 86	1.5	--	1.5

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Carbon Tetrachloride	µg/L	AMEL 4.2 MDEL 8.5	0.36	--	0.36
Chlorodibromomethane	µg/L	AMEL 7.6 MDEL 12	16.5	--	20.5
Dichlorobromomethane	µg/L	AMEL 11 MDEL 17	45.7	--	55.8
Ammonia Nitrogen, Total (as N) (1 April – 30 September)	mg/L	AMEL 0.94 AWEL 2.1	ND (see table note 2 below)	0.6	2.0
Ammonia Nitrogen, Total (as N) (1 April – 30 September)	lbs/day (see table note 1)	AMEL 160 AWEL 350	ND (see table note 2 below)	100	333
Ammonia Nitrogen, Total (as N) (1 October – 31 March)	mg/L	AMEL 2.1 AWEL 4.7	0.7	1.9	3.8
Ammonia Nitrogen, Total (as N) (1 October – 31 March)	lbs/day (see table note 1)	AMEL 350 AWEL 784	117	317	634
Aluminum, Total Recoverable	µg/L	AMEL 350 AWEL 820	331	623	623
Nitrate Nitrogen, Total	mg/L	AMEL 31 AWEL 38	16	30	30
Chlorine, Total Residual	mg/L	4-day avg. 0.011 1-hr avg. 0.019	--	--	ND (see table note 2)
Electrical Conductivity	µmhos/cm	Calendar year annual average 1,250	1280	1550	1550
Total Coliform Organisms	MPN/100 mL	7-day median 2.2 Once in 30-day period 23 At any time 240	--	<2.2	23
Diazinon	µg/L	(see table note 3 below)	<0.02	--	<0.02
Chlorpyrifos	µg/L	(see table note 3 below)	<0.01	--	<0.01
Mercury, Total	lbs/year	Calendar year annual average 0.82	0.184 (see table note 4 below)	--	--

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Average Dry Weather Flow	MGD	MDEL 20	11.3	12.0	14.2
Acute Whole Effluent Toxicity	% survival	70 % minimum for any one bioassay 90% median for any three bioassays	--	--	--
Chronic Whole Effluent Toxicity	TUc	1	section IV.C.5 below	--	--

Table F-2 Notes:

- Based on a design flow of 20 MGD.
- Not detected.
- Average Monthly Effluent Limitation (AMEL)
 $S(AMEL) = Cd (M\text{-avg})/0.079 + Cc (M\text{-avg})/0.012 \leq 1.0$
 Where:
 Cd(M-avg) = average monthly diazinon effluent concentration in µg/L
 Cc (M-avg) = average monthly chlorpyrifos effluent concentration in µg/L
 Average Weekly Effluent Limitation (AWEL)
 $S(AWEL) = Cd (W\text{-avg})/0.14 + Cc (W\text{-avg})/0.021 \leq 1.0$
 Where:
 Cd(W-avg) = average weekly diazinon effluent concentration in µg/L
 Cc (W-avg) = average weekly chlorpyrifos effluent concentration in µg/L
- Maximum annual average.
- Applied as a numeric toxicity monitoring trigger.

D. Compliance Summary

The Discharger was issued Expedited Payment Program Letter (EPL) R5-2019-0507 on 26 April 2019 for violations occurring between 1 January 2014 and 31 December 2018. The EPL was issued for one Group II Serious Violation of the one-hour average total chlorine residual effluent limitation. The EPL administered a mandatory minimum penalty of \$3,000 for the effluent limitation violation that was settled by payment by the Discharger on 21 May 2019.

E. Planned Changes

The Discharger is currently in the process of installing an additional grit classifier, constructing a biosolids laydown area, and upgrading the facility’s utility water pump station. The Discharger will also modify its recycled water supply infrastructure to provide dechlorinated recycled water to TID Upper Lateral 4. Prior to initiating discharge, the outfall to TID’s Upper Lateral 4 must also be constructed.

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.
 - b. Beneficial uses applicable to the San Joaquin River are specifically identified in Table 2-1 of the Basin Plan from the mouth of the Merced River to Vernalis. The TID Upper Lateral 4 is not a named waterbody in the Basin Plan for which beneficial uses have been assigned and the tributary rule does not apply to the TID Upper Lateral 4, because it is not a natural waterway. The TID Upper Lateral 4 is a concrete lined agricultural canal designed solely for irrigation water conveyance. Due to the nature of the canal system (e.g., concrete lining) it does not support the aquatic life beneficial use. Therefore, this Order applies the AGR beneficial to the TID Upper Lateral 4 based on the designed purpose of the canal, contact and non-contact recreation (REC-1 and REC-2) due to public contact with irrigation water, and the municipal and domestic water supply (MUN) beneficial use based on the Sources of Drinking Water Policy, State Water Board Resolution 88-63. The beneficial uses applicable to this discharge for the San Joaquin River and the TID Upper Lateral 4 are as follows.

Table F-3 Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	San Joaquin River	Existing: Agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PROC); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); warm and cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN), and wildlife habitat (WILD). Potential: Municipal and domestic water supply (MUN).
003	TID Upper Lateral 4	Existing: Agricultural supply, including irrigation and stock watering (AGR); contact and non-contact recreation (REC-1 and REC-2). Potential: Municipal and domestic water supply (MUN).

- c. **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 San Joaquin River at Vernalis that are applicable to the discharge through implementation of the *Basin Plan Amendment for the Control of Salt and Boron Discharges into the Lower San Joaquin River* (LSJR Salt and Boron Control Program) adopted by the Central Valley Water Board on 10 September 2004, by Resolution No. R5-2004-0108.

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 $\mu\text{mhos/cm}$ from April to August and 1000 $\mu\text{mhos/cm}$ from September to March as noted in Table 2, Water Quality Objectives for Agricultural Beneficial Uses, in the Bay-Delta Plan. The water quality objectives of the Bay-Delta Plan are implemented as part of this Order consistent with the LSJR Salt and Boron Control Program.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.
3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became

effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") (State Anti-Degradation Policy). The State Anti-Degradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Anti-Degradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. The Board finds this order is consistent with the Federal and State Water Board antidegradation regulations and policy.
5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that "the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board

or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”.

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

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

9. **Storm Water Requirements.** U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The State Water Resources Control Board Water Quality Order 2014-0057-DWQ, General Permit for Storm Water Discharges Associated with Industrial Activities (NPDES General Permit No. CAS000001), does not require facilities to obtain coverage if discharges of storm water are regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board (Finding I.B.20). All storm water at the Facility is captured and directed to the Facility headworks for treatment and disposal under this Order. Therefore, coverage under the General Storm Water Permit is not required.

10. **Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The State Water Board amended the MRP for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. The 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, State Water Board Order 2006-0003-DWQ, Statewide General Waste Discharge

Requirements for Sanitary Sewer Systems, as amended by State Water Board Order WQ 2013-0058-EXEC and 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

- Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 6 April 2018 U.S. EPA gave final approval to California's 2014-2016 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The listing for the San Joaquin River (Merced River to Tuolumne River) includes: alpha-BHC, boron, chlorpyrifos, DDE, DDT, electrical conductivity, group A pesticides, mercury, temperature, and unknown toxicity. The TID Upper Lateral 4 is not listed on the CWA 303(d) List.
- Total Maximum Daily Loads (TMDL’s). Table F-4, below, identifies the 303(d) listings and any applicable TMDLs for the San Joaquin River (Merced River to Tuolumne River). This permit includes WQBELs for discharges to the San Joaquin River at Discharge Point 001 that are consistent with the assumptions and considerations of the applicable WLAs in each TMDL.

Table F-4. 303 (d) List for San Joaquin River (Merced River to Tuolumne River)

Pollutant	Potential Sources	TMDL Status
alpha-BHC	Source Unknown	Estimated completion in 2027
Chlorpyrifos	Agriculture	Completed in 2007
DDE	Agriculture	Estimated completion in 2027
DDT	Agriculture	Estimated completion in 2027
Electrical Conductivity	Agriculture	Estimated completion in 2027

Pollutant	Potential Sources	TMDL Status
Group A Pesticides	Agriculture	Completed in 2011
Mercury	Resource Extraction	Completed in 2012
Temperature	Source Unknown	Estimated completion in 2021
Unknown Toxicity	Source Unknown	Estimated completion in 2019

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 section 122.41(m)(4)).** As stated in section I.G of

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

3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance
4. **Prohibition III.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 – San Joaquin River).** 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. R5-2015-0027-01 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.
6. **Prohibition III.F (Annual Average Flow – TID Upper Lateral 4).** This prohibition is based on the agreement between the Discharger and TID that up to 2,000 acre-feet of recycled water may be delivered from the Facility to the TID Upper Lateral 4 for irrigation purposes during the normal irrigation season (1 March – 31 October). To provide operational flexibility so that the full 2,000 acre-feet can be provided without a violation for slightly exceeding this volume, the prohibition restricts the discharge volume to 2,033 acre-feet.
7. **Prohibition III.G (Surface Water Discharge to TID Upper Lateral 4 (Discharge Point 003)).** This prohibition is based on the agreement between the Discharger and TID for TID to accept tertiary recycled water from the Discharger. To ensure that both parties are in agreement upon the conditions of the discharge to the TID Upper Lateral 4, the prohibition requires the Discharger to submit to the Central Valley Water Board a copy of the agreement in order to obtain written approval from the Executive Office to the initiate the discharge.

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 biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH.

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

- a. **BOD₅ 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 BOD₅ and TSS. A daily maximum effluent limitation for BOD₅ and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD₅ and TSS over each calendar month. This Order requires Water Quality Based Effluent Limitations (WQBEL's) that are equal to or more stringent than the secondary technology-based treatment described in 40 CFR part 133 (See section IV.C.3.d of the Fact Sheet for a discussion on Pathogens which includes WQBEL's for BOD₅ 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 001 and Discharge Point 003

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

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

Table F-5 Notes:

- Note that more stringent WQBEL’s for BOD₅, 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 a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment, is discussed in section IV.3.C 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 section 122.44(d)(1)(vi).

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

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

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

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

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

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

- a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.
- b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from 1 September 2016 through 31 July 2019, which includes effluent and ambient background data submitted in SMRs and the ROWD.
- c. **Assimilative Capacity/Mixing Zone.**
 - i. **Regulatory Guidance for Dilution Credits and Mixing Zones.** In the ROWD, the Discharger requested mixing zones and dilution credits for compliance with human health water quality criteria. The Central Valley

Water Board has the discretion to accept or deny mixing zones and dilution credits. The constituents with effluent limitations in this Order that are based on human health criteria include chlorodibromomethane (CDBM) and dichlorobromomethane (DCBM).

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

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

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

identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board.” [emphasis added]

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

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

A mixing zone shall not:

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

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

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

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

- (a) **San Joaquin River - Human Carcinogens Considering Volatilization (Chlorodibromomethane and Dichlorobromomethane).** On 12 April 2019, the Discharger provided a Technical Memorandum entitled *Revised Dilution Credit for Trihalomethane Compounds, Turlock Water Quality Control Facility, NPDES No. CA 0078948* (Robertson – Bryan, Inc.) which provides the results of an updated dilution/mixing zone study for CDBM and DCBM that considers hydraulic mixing and volatilization of the volatile organic compounds in the Sana Joaquin River.

The Technical Memorandum presents revised dilution credits for CDBM and DCBM, which were derived in a step-wise manner. First, the dilution ratio resulting only from effluent mixing with San Joaquin River water was calculated, utilizing historical and planned effluent discharge rates and historical river flow rate data. Second, the dilution credit accounting for both mixing with river water and volatilization was determined, utilizing data collected from the river at multiple locations downstream of the Facility outfall to quantify the amount of volatilization of CDBM and DCBM occurring.

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." (SIP, section 1.4.2.1, pg. 17) This type of mixing zone study would account for the fate and transport of the volatile organic compounds. Furthermore, the U.S. EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) provides water quality modelling recommendations for the development of waste load allocations that account for constituent loss and transformation processes (e.g., volatilization). (TSD, pgs. 83-84) Based on the findings of the updated dilution/mixing zone study, there is available dilution for CDBM and DCBM, as described below.

The nearest flow gage in the San Joaquin River upstream of the Facility's treated effluent outfall is near Crows Landing and is operated by the U.S. Geological Survey (USGS gage 11274550). The harmonic mean flow rate was re-evaluated based on more recent flow data from 1 October 1995 through 21 March 2019, and resulted in a harmonic mean flow of 439 cfs, which as stated above is lower than the 617 cfs harmonic mean flow rate cited in the previous mixing zone study performed by the Discharger for human carcinogens.

The North Valley Regional Recycled Water Program effluent conveyance pipeline to provide recycled water to growers along the Delta-Mendota Canal (DMC) was completed in March 2020, the DMC is the primary discharge location for the Facility, and effluent is discharged to the San Joaquin River only on a temporary basis (e.g., when discharges to the DMC are not available due to maintenance). According to the 12 April 2019 Technical Memorandum, considering the future discharge operations the long-term average discharge rate to the San Joaquin River was estimated for the purpose of deriving the dilution credit to be no more than 7 MGD (10.85 cfs), which corresponds to a harmonic mean dilution ratio of 40.5:1. The facility's long-term average discharge rate to the San Joaquin River is anticipated to be 1 MGD, as an annual average, now that the discharge to the Delta Mendota Canal has initiated.

The CDBM and DCBM data collected from the San Joaquin River show that these compounds continue to degrade for miles following the point of complete mixing (~2 miles) through degradation of the volatile organic compounds (i.e., volatilization).

The amount of CDBM and DCBM dilution occurring in the San Joaquin River due to volatilization was calculated from comparison of measured river concentrations to calculated river concentrations that assumed conservative mixing (i.e., no loss) of the CDBM and DCBM. Considering the hydraulic mixing and volatilization a dilution credit for CDBM of 110 and a dilution credit for DCBM of 83 were calculated. The mixing zone for CDBM and DCBM extends 14,484 meters (almost nine miles) downstream of the Facility's outfall.

- (b) **TID Upper Lateral 4 - Human Carcinogens Considering Volatilization (Chlorodibromomethane and Dichlorobromomethane).** On 9 October 2019, accompanying the ROWD, The Discharger provided a Technical Memorandum entitled *Mixing Zone and Dilution Credit for Recycled Water Discharge to Turlock Irrigation District's Upper Lateral 4* (Robertson – Bryan, Inc. (RBI)) which provides the results of a dilution/mixing zone study for CDBM and DCBM that considers hydraulic mixing and volatilization of the volatile organic compounds in the TID Upper Lateral 4. An addendum to this memorandum was provided to the Central Valley Water Board on 11 March 2020.

The Technical Memorandum and addendum presents dilution credits for CDBM and DCBM, which were derived in a step-wise manner. First, the dilution ratio resulting only from effluent mixing with canal water was calculated, utilizing historical and planned

effluent discharge rates and historical irrigation flow rate data in the canal. Second, the dilution credit accounting for both mixing with canal water and volatilization was determined. Monitoring studies conducted by the cities of Vacaville, Stockton, and Turlock have shown that dilution of CDBM and DCBM in wastewater effluents discharged to receiving waters occurs through both the mixing of the effluents with the receiving waters and through volatilization (RBI 2009, 2019a, 2019b). The study of CDBM and DCBM volatilization in receiving waters that best aligns with the proposed discharge and Upper Lateral 4 setting is the Vacaville study. This study was completed as part of the development of site-specific water quality objectives for CDBM and DCBM for New Alamo Creek, Solano County, California (RBI 2009). Vacaville's Easterly Wastewater Treatment Plant discharges to Old Alamo Creek, which is a remnant channel that became disconnected from most of the Alamo Creek watershed upon construction of New Alamo Creek. Old Alamo Creek is situated within the Central Valley floor and conveys Easterly Wastewater Treatment Plant effluent, and urban and agricultural runoff. Portions of Old Alamo Creek have been straightened to convey flows (Tetra Tech, Inc. 2004). For the study, a total of 60 paired measurements of CDBM and DCBM in the effluent at the outfall and in Old Alamo Creek at the New Alamo Creek confluence 3.2 miles downstream of the outfall were collected monthly from 2002–2007 (RBI 2009). The resulting average percent reduction in CDBM and DCBM due to volatilization were 71% and 74%, respectively.

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." (SIP, section 1.4.2.1, pg. 17) This type of mixing zone study would account for the fate and transport of the volatile organic compounds. Furthermore, the USEPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) provides water quality modelling recommendations for the development of waste load allocations that account for constituent loss and transformation processes (e.g., volatilization). (TSD, pgs. 83-84) Based on the findings of the dilution/mixing zone study, there is available dilution for chlorodibromomethane and dichlorobromomethane, as described below.

TID monitors flows throughout the canal system at various drops on a 15-minute time-step. At RBI's request, TID provided flow data for calendar years 2014–2018. Because the recycled water discharge will be limited to the irrigation season and irrigation

season flows in the TID canals are regulated according to customer demand for water, and to reflect recent flow patterns, this period was considered appropriate for the mixing zone and dilution credit analysis. This flow data was used to calculate a conservative long-term average recycled water fraction. The recycled water fraction is the ratio of recycled water flow at a particular location to the total flow at that location in the TID Upper Lateral 4.

Recycled water from the Facility in the amount of 2,000 acre-feet annually will be delivered to Upper Lateral 4 during the irrigation season (2,033 acre-feet was assumed for modeling purposes, consistent with the requested permitted flow rate for this location). For planning purposes, the Discharger is prepared to deliver this water any time during 1 March – 31 October, although the discharge will initiate annually based on actual irrigation demand. The recycled water is assumed to be discharged to the TID Upper Lateral 4 over a full seven (7) month period, resulting in a daily average discharge rate of 9.5 acre-feet per day or 4.8 cubic feet per second.

The dilution credit and associated mixing zone size was determined from calculation of the long-term average Turlock RWQCF recycled water fraction in the TID Upper Lateral 4 at Drop 14 and at the Ceres Main-Upper Lateral 4 intersection. Considering the hydraulic mixing and volatilization a dilution credit for CDBM of 92 and a dilution credit for DCBM of 102 were calculated. The mixing zone for CDBM and DCBM in the TID Upper Lateral 4 extends 3.2 miles downstream of the Facility's planned outfall.

- iii. Evaluation of Available Dilution for Human Carcinogens in the San Joaquin River Considering Volatilization (Chlorodibromomethane and Dichlorobromomethane). Section 1.4.2.2 of the SIP provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for the protection of human health, the TSD states that, "*...the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes.*" There are no drinking water intakes within the human carcinogen mixing zone.

The Discharger has requested a human carcinogen mixing zone for compliance with water quality criteria for chlorodibromomethane and dichlorobromomethane. Based on the Discharger's Dilution Study, a dilution credit of 110 for CDBM and a dilution credit of 83 for DCBM are justified. The human carcinogen mixing zone meets the requirements of the SIP as follows:

- (a) Shall not compromise the integrity of the entire waterbody - The TSD states that, "If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats."

The receiving water, the San Joaquin River, is about 300 miles long, beginning in the Sierra Mountains to the east and terminating in the Delta. The Delta consists of many hundreds of miles of natural and constructed channels. By comparison the mixing zone size is 9 miles long. Therefore, the mixing zone would not compromise the integrity of the entire waterbody.

- (b) Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone.

The human carcinogen mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

- (c) Shall not restrict the passage of aquatic life.

The human carcinogen mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.

- (d) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws.

The human carcinogen mixing zone is not applicable to aquatic life criteria. The mixing zone will not impact biologically sensitive or critical habitats.

- (e) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance.

The allowance of the human carcinogen mixing zone will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance. This Order requires end-of-pipe effluent limitations (e.g., for BOD₅ and TSS) and discharge prohibitions to prevent these conditions from occurring.

- (f) Shall not dominate the receiving water body or overlap a mixing zone from different outfalls.

As discussed in Section IV.C.2.c.iv.(a) above, the human carcinogen mixing zone is small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zone does not overlap mixing zones as there are no other mixing zones in the vicinity of the discharge. The City of Modesto Water Quality Control Facility's discharge is located approximately 5.5 miles downstream of the discharge. The mixing zone for chlorodibromomethane and dichlorobromomethane extends approximately 9 miles downstream of the Facility's outfall, this extends beyond the outfall from the City of Modesto Water Quality Control Facility, however, the City of Modesto Water Quality Control Facility does not have any existing mixing zones. Furthermore, the City of Modesto Water Quality Control Facility primarily discharges to the Delta Mendota Canal under Order R5-2016-0010 (NPDES No. CA0085316), uses ultraviolet light disinfection that does not produce disinfection byproducts such as chlorodibromomethane and dichlorobromomethane, and only discharges to the San Joaquin River when unable to discharge to the Delta Mendota Canal. Therefore, the mixing zone for chlorodibromomethane and dichlorobromomethane does not overlap any other mixing zone.

- (g) Shall not be allowed at or near any drinking water intake.

There are no drinking water intakes within the human carcinogen mixing zone. The discharge enters the San Joaquin River just over 28 miles upstream of the nearest drinking water supply (in the Delta downstream of Vernalis). The human carcinogen mixing zone extends approximately 9 miles downstream of the discharge. There is significant dilution, much more than allowed in this Order, prior to any drinking water intake within the Delta.

- iv. Evaluation of Available Dilution for Human Carcinogens in the TID Upper Lateral 4 Considering Volatilization (Chlorodibromomethane and Dichlorobromomethane). Section 1.4.2.2 of the SIP provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for the protection of human health, the TSD states that, "...*the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes.*" There are no drinking water intakes within the human carcinogen mixing zone.

The Discharger has requested a human carcinogen mixing zone for compliance with water quality criteria for chlorodibromomethane and dichlorobromomethane. Based on the Discharger's Dilution Study, a dilution credit of 92 for CDBM and a dilution credit of 102 for DCBM are

justified. The human carcinogen mixing zone meets the requirements of the SIP as follows:

- (a) Shall not compromise the integrity of the entire waterbody - The TSD states that, "If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats."

The total length of all the channels that comprise the proposed mixing zone is 7.7 miles out of a total of 112 miles that comprise the TID canal system prior to its discharge to the San Joaquin River from Harding Drain, or 6.9 percent of the total system channel length. Therefore, the mixing zone will not compromise the integrity of the entire waterbody.

- (b) Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone.

The human carcinogen mixing zone is not applicable to aquatic life criteria. Therefore, acutely toxic conditions will not occur in the mixing zone.

- (c) Shall not restrict the passage of aquatic life.

The human carcinogen mixing zone is not applicable to aquatic life criteria. Therefore, the mixing zone will not restrict the passage of aquatic life.

- (d) Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws.

The human carcinogen mixing zone is not applicable to aquatic life criteria. The mixing zone will not impact biologically sensitive or critical habitats.

- (e) Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance.

The allowance of the human carcinogen mixing zone will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance. This Order requires end-of-pipe effluent limitations (e.g., for BOD₅ and TSS) and discharge prohibitions to prevent these conditions from occurring.

- (f) Shall not dominate the receiving water body or overlap a mixing zone from different outfalls.

The mixing zone for CDBM and DCBM is small relative to the size of TID's canal system, so it will not dominate the TID's canal system. Furthermore, the mixing zone will not overlap mixing zones from other outfalls; there are no other wastewater treatment facility discharges to Upper Lateral 4, Lower Lateral 4, Lateral 4.5, or Ceres Main within the proposed mixing zone.

- (g) Shall not be allowed at or near any drinking water intake.

There are no drinking water intakes within the CDBM and DCBM mixing zone. The TID canal system provides irrigation water and there are no drinking water intakes on Upper Lateral 4, Lower Lateral 4, Lateral 4.5, or the Ceres Main.

- v. **Evaluation of Available Dilution for Specific Constituents.** Dilution credits allowed for in this Order are in accordance with section 1.4.2.2 of the SIP. The allowance of a mixing zone and dilution credits are a discretionary act by the Central Valley Water Board. The Central Valley Water Board has determined that the maximum dilution credit on a constituent-by-constituent basis needed for this discharge are shown in the following table (also discussed further in section IV.C.3.c).

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-6. Dilution Credits– San Joaquin River

Pollutant	Units	ECA	Criterion	Background	Dilution Credit
Chlorodibromomethane	µg/L	43.3	0.41	0.02	110
Dichlorobromomethane	µg/L	46.2	0.56	0.01	83

Table F-7. Dilution Credits– TID Upper Lateral 4

Pollutant	Units	ECA	Criterion	Background	Dilution Credit
Chlorodibromomethane	µg/L	37.7	0.41	0.02	92
Dichlorobromomethane	µg/L	60.0	0.56	0.01	102

To fully comply with all applicable laws, regulations and policies of the State, Central Valley Water Board approved a mixing zone and the associated dilution credits shown in Table F-6 and F-7 based on the following:

- (a) Mixing zones are allowed under the SIP provided all elements contained in section 1.4.2.2 are met. Based on the mixing zone studies conducted by the Discharger the Central Valley Water Board has determined that these factors are met.
- (b) Section 1.4.2.2. of the SIP requires mixing zones to be as small as practicable. Based on the mixing zone studies conducted by the Discharger the Central Valley Water Board has determined the mixing zone is as small as practicable.
- (c) In accordance with section 1.4.2.2 of the SIP, the Board has determined the mixing zones are as small as practicable, 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 (approximately 9 miles downstream of the discharge in the San Joaquin River and approximately 7.7 miles downstream of the discharge in the TID Upper Lateral 4) relative to the large size of the receiving waters (approximately 300 miles of San Joaquin River and approximately 112 miles that comprise the TID canal system before it enters the San Joaquin River), 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 only 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 zone is for human health criteria only, is relatively small, and acutely toxic conditions will not occur in the mixing zone. The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the proposed Order establishes end-of-pipe effluent limitations (e.g., for BOD₅ 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 a mixing zone and dilution credit, 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 is adequately protective of the beneficial uses of the receiving water.
- (g) The Central Valley Water Board has determined mixing zones comply with the SIP for priority pollutants.
- (h) The mixing zone studies indicates the maximum allowed dilution factor to be 110 for CDBM and 83 for DCBM in the San Joaquin River and 92 for CDBM and 102 for DCBM in the TID Upper Lateral 4. Section 1.4.2.2B of the SIP, in part states, "The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements." The Central Valley Water Board has determined a dilution factor of 110 for CDBM and 83 for DCBM in the San Joaquin River and 92 for CDBM and 102 for DCBM in the TID Upper Lateral 4 is needed or necessary for the Discharger to achieve compliance with this Order.
- (i) The Central Valley Water Board has determined the mixing zones comply with the Basin Plan for non-priority pollutants. The Basin Plan requires a mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zones, the Central Valley Water Board has considered the procedures and guidelines in section 5.1 of U.S. EPA's Water Quality Standards Handbook, 2nd Edition (updated July 2007) and section 2.2.2 of the TSD. The SIP incorporates the same guidelines.
- (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 Anti-degradation Policy for receiving waters outside the allowable mixing zones for CDBM and DCBM.

The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 (State Anti-Degradation Policy). The State Anti-Degradation Policy incorporates the federal antidegradation policy and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of the State Anti-Degradation Policy states:

"Any activity which produces or may produce a waste or increased volume or concentration of waste and which dischargers or proposed to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

The Central Valley Water Board determined the effluent limitations required by this Order will result in the Discharger implementing best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained. The Central Valley Water Board also determined the Discharger will be in immediate compliance with the effluent limitations.

The Central Valley Water Board also determined establishing effluent limitations for CDBM and DCBM that have been adjusted for dilution credits provided in Table F-6 and F-7 is consistent with section 1.4.2.2B of the SIP that requires the Central Valley Water Board to deny or significantly limit a mixing zone and dilution credits as necessary to comply with other regulatory requirements.

- (k) Therefore, the Central Valley Water Board has determined the effluent limitations established in the Order for CDBM and DCBM that have been adjusted for dilution credits provided in Table F-6 and F-7 are appropriate and necessary to comply with the Basin Plan, SIP, Federal anti-degradation regulations and the State Anti-Degradation Policy.
- d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default U.S. EPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

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

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP¹ and the CTR². The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones (40 C.F.R. section 131.3(c)(4)(ii)). Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10).³ This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a three year period on average.⁴ The CTR requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge.⁵ The CTR does not define the term “ambient,” as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

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 28 mg/L to 235 mg/L based on collected ambient data from September 2016 to July 2019. 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

¹ The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

² The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. section 131.38(c)(4)).

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

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

⁵ 40 C.F.R. section 131.38(c)(2)(i)

Board has discretion to select ambient hardness values within the range of 28 mg/L (minimum) up to 235 mg/L (maximum) for the San Joaquin River. Staff recommends that the Board use the ambient hardness values shown in Table F-8 for the following reasons.

- i. 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.
- ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-8 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.
- iii. Using an ambient hardness that is higher than the minimum of 28 mg/L for the San Joaquin River will result in limits that may allow increased metals to be discharged to the river, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in section IV.D.4 of the Fact Sheet). The Antidegradation policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the

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

- iv. Using the ambient hardness values shown in Table F-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 for San Joaquin River

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable) (Acute)	CTR Criteria (µg/L, total recoverable) (Chronic)
Copper	84	12	8.0
Chromium III	84	1500	180
Cadmium	80 (acute) 84 (chronic)	3.5	2.1
Lead	76	58	2.3
Nickel	84	400	45
Silver	67	2.0	--
Zinc	84	100	103

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

Background

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

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

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

Where:

H = ambient hardness (as CaCO₃)

WER = water-effect ratio

m, b = metal- and criterion-specific constants

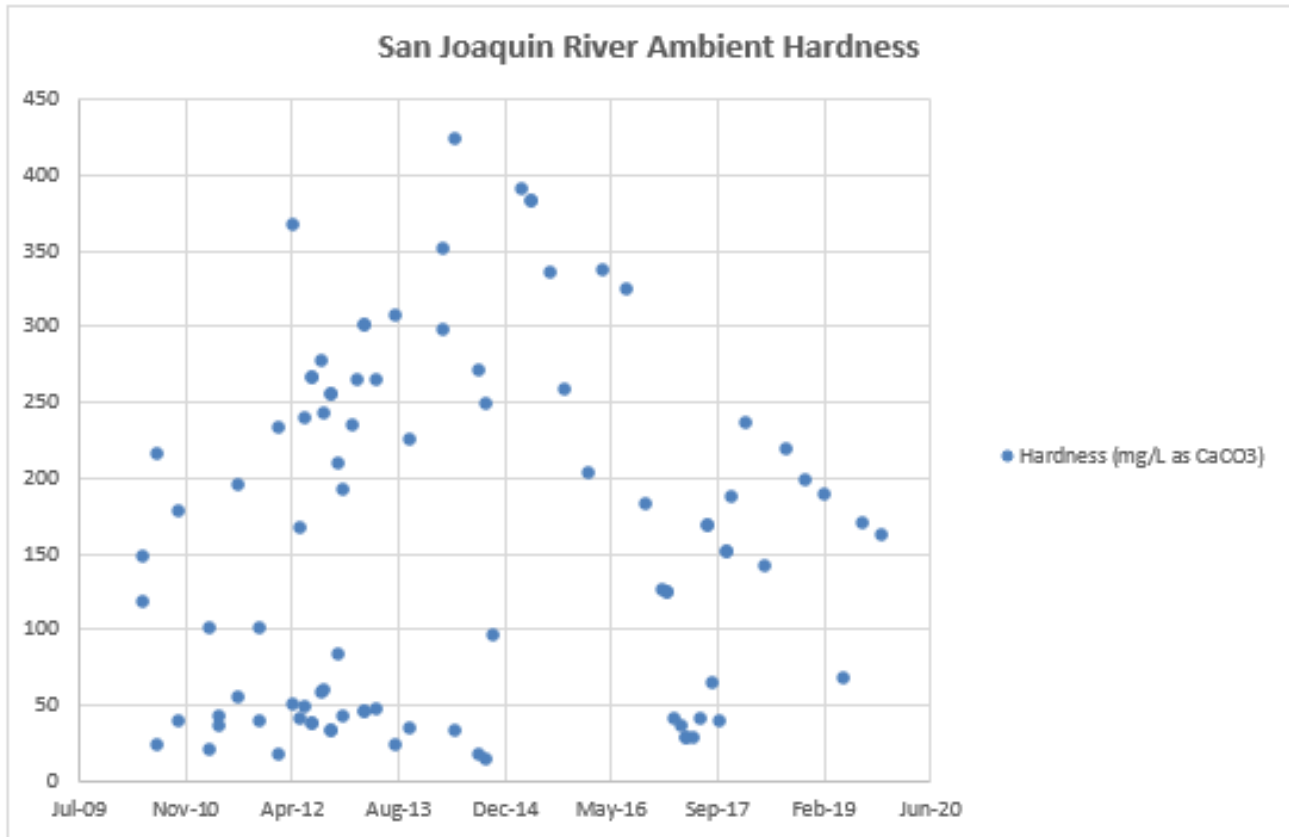
The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected “design” hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a three year period.⁶ Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10). The 1Q10 and 7Q10 San Joaquin River flows are 22 cfs and 719 cfs, respectively.

Ambient conditions – San Joaquin River

The ambient receiving water hardness in the San Joaquin River varied from 14 mg/L to 425 mg/L, based on 92 samples from May 2010 through November 2019 (see Figure F-1).

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

**Figure F-1. Observed San Joaquin River Ambient Hardness Concentrations
 May 2010 - November 2019**



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

Approach to derivation of criteria

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

Reasonable worst-case ambient conditions. To determine whether a selected ambient hardness value results in effluent limitations that are fully protective while complying with federal regulations and state policy, staff have conducted an analysis considering varying ambient hardness and

flow conditions. To do this, the Central Valley Water Board has ensured that the receiving water hardness and criteria selected for effluent limitations are protective under “reasonable-worst case ambient conditions.” These conditions represent the receiving water conditions under which derived effluent limitations would ensure protection of beneficial uses under all ambient flow and hardness conditions.

Reasonable worst-case ambient conditions:

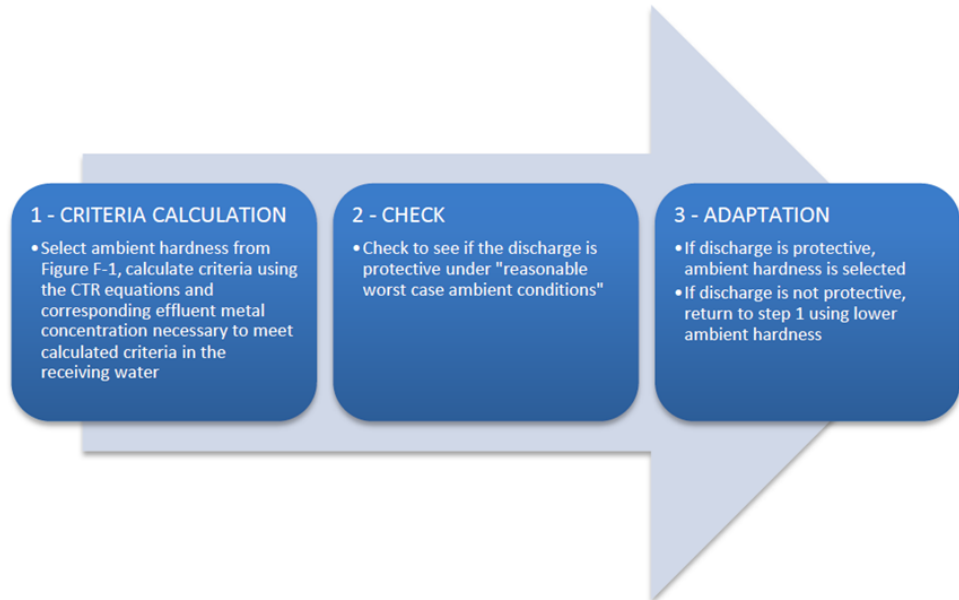
- “Low receiving water flow.” CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions.
- “High receiving water flow (maximum receiving water flow).” This additional flow condition has been selected consistent with the Davis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

Iterative approach.

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

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

Figure F-2. Criteria Calculation CTR



1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 232 mg/L in the San Joaquin River and 145 mg/L in the TID Upper Lateral 4. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.⁷ 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.”⁸ 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 equation⁹ is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. **ADAPT.** If step 2 results in:

⁷ SIP section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.

⁸ U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.

⁹ U.S. EPA NPDES Permit Writers’ Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

- (A) receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.
- (B) receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

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

Results of iterative analysis

The iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values are shown in Table F-8 above. Using these actual receiving water sample hardness values to calculate criteria will result in effluent limitations that are protective under all ambient flow conditions. Ambient hardness values are used in the CTR equations to derive criteria and effluent limitations. As an example of the three-step iterative process, Table F-10 below summarizes the numeric results for copper in the San Joaquin River based on an ambient hardness of 84 mg/L and a calculated ECA of 8.0 µg/L. Table F-11 below summarizes the numeric results for silver in the San Joaquin River based on an ambient hardness of 67 mg/L and a calculated ECA of 2.0 µg/L. The analysis evaluated all flow conditions, and the numeric values for the critical flow conditions are summarized in Tables F-10 and F-11, below. Ambient concentrations for copper and silver are calculated using the worst-case downstream ambient conditions, which allows for a conservative assumption that will ensure the receiving water complies with CTR criteria. Under the “check” step, worst-case ambient receiving water conditions are used to test whether the effluent discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the iterative analyses show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-9 and F-10 below, summarize the critical flow conditions. There is no effluent limitation for copper and silver as it demonstrates no reasonable potential.

**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	60.7	6.1	6.0	Yes

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Copper Concentration (µg/L)	Complies with CTR?
7Q10	30.3	3.4	3.3	Yes
Max receiving water flow	28.1	3.2	3.2	Yes

**Table F-10. Verification of CTR Compliance for Silver
 Downstream Worst-Case Ambient Receiving Water Conditions**

Critical Flow Conditions	Hardness	CTR Criteria (µg/L)	Ambient Silver Concentration (µg/L)	Complies with CTR?
1Q10	60.7	1.7	1.4	Yes
7Q10	30.3	0.5	0.5	Yes
Max receiving water flow	28.1	0.5	0.5	Yes

3. Determining the Need for WQBEL's.

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

a. Constituents with Total Maximum Daily Load (TMDL) – Discharge Point 001 - San Joaquin River.

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 TMDLs for chlorpyrifos and diazinon and mercury and wasteload allocations under those TMDLs 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 a reasonable potential analysis.

i. Diazinon and Chlorpyrifos.

- (a) **WQO.** The Central Valley Water Board completed a TMDL for diazinon and chlorpyrifos in the Sacramento – San Joaquin Delta Waterways and amended the Basin Plan to include diazinon and chlorpyrifos waste load allocations 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 amendment states that “The waste load allocations for all NPDES-permitted dischargers...shall not exceed the sum (S) of one (1) as defined below.

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

Where:

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

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

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

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

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

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

- (b) **RPA Results.** Chlorpyrifos and diazinon were not detected in the effluent during 15 sampling events conducted between September 2016 and September 2018. However, since these pesticides have been banned for public use, they are not expected to be present in the effluent. The discharge does not have reasonable potential, but due to the TMDL for diazinon and chlorpyrifos in the Delta, WQBELs for these constituents are required. The TMDL waste load allocation applies to all NPDES dischargers to Delta waterways and will serve as the basis for WQBELs at Discharge Point 001.

- (c) **WQBELs.** WQBELs for diazinon and chlorpyrifos are required based on the TMDL for diazinon and chlorpyrifos in the San Joaquin River. Therefore, this Order includes effluent limits calculated based on the waste load allocations contained in the TMDL, as follows:

Average Monthly Effluent Limitation (AMEL)

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

Where:

$C_d(\text{M-avg})$ = average monthly diazinon effluent concentration in $\mu\text{g/L}$

$C_c (\text{M-avg})$ = average monthly chlorpyrifos effluent concentration in $\mu\text{g/L}$

Average Weekly Effluent Limitation (AWEL)

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

Where:

$C_d(\text{W-avg})$ = average weekly diazinon effluent concentration in $\mu\text{g/L}$

$C_c (\text{W-avg})$ = average weekly chlorpyrifos effluent concentration in $\mu\text{g/L}$

- (d) **Plant Performance and Attainability.** Chlorpyrifos and diazinon were not detected in the effluent 15 sampling events conducted between September 2016 and September 2018. Furthermore, since these pesticides have been banned for public use, they are not expected to be present in the influent to the Facility. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Salinity**

- (a) **WQO.** The San Joaquin River in the vicinity of the discharge is included on the 303(d) list as an impaired water body due to elevated electrical conductivity levels. Salinity levels in the Lower San Joaquin River are affected by both the salt loads and the quantity of flow in the river. The Central Valley Water Board completed a TMDL for salt and boron in the Lower San Joaquin River and amended the Basin Plan. *The Basin Plan Amendment for the Control of Salt and Boron Discharges into the Lower San Joaquin River* (LSJR Salt and Boron Control Program) was adopted by the Central Valley Water Board on 10 September 2004, by Resolution No. R5-2004-0108, and was approved by the State Water Board, the Office of Administrative Law, and U.S. EPA.

The LSJR Salt and Boron Control Program established salt load limits to achieve compliance at the Airport Way Bridge near Vernalis with salt and boron water quality objectives for the Lower San Joaquin River. The LSJR Salt and Boron Control Program also established a timeline for developing water quality objectives for the San Joaquin River upstream of Vernalis. The Lower San Joaquin Committee within CV-SALTS has developed a work plan to guide the completion of a Basin Plan Amendment for establishing salinity water quality objectives in the Lower San Joaquin River from the Merced River to Vernalis. The LSJR Salt and Boron Control Program's goal *"is to achieve compliance with salt and boron water quality objectives without restricting the ability of dischargers to export salt out of the San Joaquin River basin...The Regional Board encourages real-time water quality management and pollutant trading of waste load allocations, load allocations, and supply water allocations as a means for attaining salt and boron water quality objectives while maximizing the export of salts out of the LSJR watershed."*

The LSJR Salt and Boron Control Program provided that *"Existing NPDES point source dischargers are low priority and subject to the compliance schedules for low priority discharges in Table IV-6... Low priority discharges have 16 years (Wet through Dry Water Year Types) and 20 years (Critical Water Year Types) from the effective date of the control program to comply with the TMDL allocations."* According to the TMDL report associated with the Basin Plan amendment, the two major NPDES permittees in this area (one of which is the Discharger) *"account for no more than two percent of the total salt load at Vernalis."*

Resolution R5-2017-0062 was adopted by the Central Valley Water Board on 9 June 2017 and amends the Basin Plan to include new water quality objectives for electrical conductivity in

the Lower San Joaquin River between the Mouth of the Merced River and the Airport Way Bridge near Vernalis. The new water quality objective for the Lower San Joaquin River is 1,550 $\mu\text{mhos/cm}$ (as a 30-day running average), except during extended dry periods, when concentrations shall not exceed 2,470 $\mu\text{mhos/cm}$ (as a 30-day running average) and 2,200 $\mu\text{mhos/cm}$ (as an annual average using at a minimum the previous four quarterly samples).

- (b) **WQBEL's.** The LSJR Salt and Boron Control Program established waste load allocations for NPDES permitted discharges to not exceed the Bay-Delta Plan South Delta electrical conductivity objectives for the San Joaquin River at Airport Way in Vernalis (see Section III.C.1.c of the Fact Sheet).

On 1 June 2011, the Superior Court for Sacramento County entered a judgment and peremptory writ of mandate in the matter of *City of Tracy v. State Water Resources Control Board* (Case No; 34-2009-8000-392-CU-WM-GDS), ruling that the South Delta salinity objectives shall not apply to the City of Tracy and **other municipal dischargers** pending reconsideration of the South Delta salinity objectives and adoption of a proper program of implementation that includes municipal dischargers. Therefore, at the time this Order was adopted the South Delta salinity objectives (including the objectives for the San Joaquin River at Airport Way in Vernalis) are not applicable to the Discharger.

As discuss in Section III.C.1.c of the Fact Sheet the State Water Board adopted revised salinity water quality objectives for the South Delta and program of implementation for municipal dischargers. However, the updated water quality objectives have not been approved by U.S. EPA so are not in effect. Therefore, in accordance with the peremptory writ of mandate in the matter of *City of Tracy v. State Water Resources Control Board* (Case No; 34-2009-8000-392-CU-WM-GDS), the Central Valley Water Board is not able to apply the Bay-Delta Plan salinity objectives to the discharge of the Facility, and as a result, is unable to establish final water quality-based effluent limits.

Pending U.S. EPA approval of the Bay-Delta Plan amendment, this Order includes permit requirements to ensure the Discharger does not increase the salinity of the discharge. This Order retains a performance-based annual average effluent limit (AAEL) for electrical conductivity of 1,250 $\mu\text{mhos/cm}$ and requires the Discharger to continue to implement a salinity source control program to identify and implement measures to reduce salinity in the discharge. The established effluent limit is based on current treatment plant performance, adjusted to

account for possible drought, water conservation, and water recycling efforts. The effluent limit was derived using the report titled, *Water Conservation and Drought Effects on City of Turlock Performance-based Electrical Conductivity Effluent Limitations*, by Larry Walker Associates, Inc, dated 13 February 2015, and has been carried forward from previous Order R5-2015-0027-01.

This Order contains a reopener provision in the event the Bay-Delta Plan EC objectives for the South Delta are approved. The reopener provision would allow the permit to be reopened to modify the WQBEL's for EC as appropriate.

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

The Phase 1 Compliance pathways are: 1) Conservative Salinity Permitting Approach, which utilizes the existing regulatory structure and focuses on source control, conservative salinity limits on the discharge, and limits the use of assimilative capacity and compliance time schedules; and, 2) Alternative Salinity Permitting Approach, which is an alternative approach to compliance through implementation of specific requirements such as participating in the Salinity Prioritization and Optimization Study (P&O) rather than the application of conservative discharge limits.

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

- (c) **Plant Performance and Attainability.** Based on existing Facility performance it appears the Discharger can immediately comply with the electrical conductivity effluent limits.
- b. **Constituents with Total Maximum Daily Load (TMDL) – Discharge Point 003 – TID Upper Lateral 4 – Not Applicable.**

c. **Constituents with No Reasonable Potential – Discharge Point 001 - San Joaquin River.**

Central Valley Water Board staff conducted reasonable potential analyses for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. All reasonable potential analyses are included in the administrative record and a summary of the constituents of concern is provided in Attachment G. WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an instream excursion of an applicable water quality objective; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

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

i. **Aluminum**

- (a) **WQO.** The State Water Board Division of Drinking Water (DDW) has established Secondary Maximum Contaminant Levels (MCLs) to assist public drinking water systems in managing their drinking water for public welfare considerations, such as taste, color, and odor. The Secondary MCL for aluminum is 200 µg/L for protection of the MUN beneficial use. Title 22 requires compliance with Secondary MCLs on an annual average basis.

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and dissolved organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life.

The 2018 U.S. EPA NAWQC for protection of freshwater aquatic life for aluminum recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (4-day average; criteria continuous concentration or CCC) standards based upon Multiple Linear Regression (MLR) models for vertebrate and invertebrate species that use pH, dissolved organic carbon (DOC), and total hardness to quantify the effects of these water

chemistry parameters on the bioavailability and resultant toxicity of aluminum to aquatic organisms. The 2018 Aluminum NAWQC document provides look up tables or a Microsoft Excel spreadsheet to calculate the criteria based on pH, DOC, and total hardness. The U.S. EPA aluminum criteria have been used to implement the Basin Plan's narrative toxicity objective.

A site-specific CCC of 630 µg/L and CMC of 1800 µg/L were calculated considering pH, hardness, and DOC representative of effluent conditions. Effluent sampling results for pH and hardness from September 2016 to September 2019 were used in the evaluation. In the absence of DOC data, the criteria were calculated considering a conservative assumption of DOC for the effluent of 8 mg/L.

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

For the 2018 U.S. EPA NAWQC the RPA was conducted considering the maximum effluent concentration (MEC) for aluminum, which was 623 µg/L based on 81 samples collected between September 2016 and September 2019. Effluent aluminum is consistently less than the concentrations in the receiving water and below the NAWQC. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance of the narrative toxicity objective in the receiving water and the Facility is adequately controlling the discharge of aluminum.

ii. **Bis (2-ethylhexyl) Phthalate**

- (a) **WQO.** The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed.

- (b) **RPA Results.** The MEC for bis (2-ethylhexyl) phthalate was 1.5 µg/L. Therefore, bis (2-ethylhexyl) phthalate in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 1.8 µg/L, and the WQBEL's for bis (2-ethylhexyl) phthalate have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Carbon Tetrachloride**

- (a) **WQO.** The CTR includes a criterion of 0.25 µg/L for carbon tetrachloride for the protection of human health protection for waters from which both water and organisms are consumed.
- (b) **RPA Results.** Only one out of 35 effluent samples for carbon tetrachloride was detected between September 2016 and July 2019. This result was a detected, but not quantified (DNQ) estimated value of 0.36 µg/L, which is lower than the Minimum Level for the analytical method.

SIP Section 2.4.2 states that the Minimum Level is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences. SIP Section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP. Data reported below the Minimum Level indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

Since the only detected effluent data point was DNQ, the data is insufficient per Section 1.2 of the SIP and has not be used for the RPA. Therefore, carbon tetrachloride in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion of 0.25 µg/L, and the WQBEL's for carbon tetrachloride have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Mercury**

- (a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water

and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 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 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. As shown in Table F-3, the beneficial uses of the San Joaquin River include AGR, PROC, REC-1, REC-2, WARM, MIGR, SPWN, WILD, and MUN; therefore, the Sport Fish Water Quality Objective is applicable and is the most stringent objective.

- (b) **RPA Results.** The Statewide Mercury Provisions specify that the RPA shall be conducted using the maximum annual average effluent and background mercury concentrations for comparison with the Sport Fish Water Quality Objective. The MEC for mercury was 8.4 ng/L, with a maximum annual average of 3.0 ng/L based on 34 samples collected between September 2016 and July 2019. The maximum annual average background concentration for mercury in the San Joaquin River was 4 ng/L based on 12 samples collected between January 2017 and December 2017.

Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Sport Fish Water Quality Objective in the receiving water. However, the San Joaquin River has been listed as an impaired water body pursuant to CWA section 303(d) because of mercury and the discharge must not cause or contribute to increased mercury levels.

- (c) **WQBEL’s.** Order R5-2015-0027-01 established a performance-based effluent limitation for mercury of 0.82 lbs/year. This Order retains the performance-based mass effluent limitation of

0.82 lbs/year as a final limitation for mercury for the effluent discharged to the San Joaquin River. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established.

- (d) **Plant Performance and Attainability.** The maximum observed total annual mercury loading was 0.184 lbs/year. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.
- d. **Constituents with No Reasonable Potential – Discharge Point 003 – TID Upper Lateral 4.**
- i. **Salinity**
 - (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective.

Table F-11. Salinity Water Quality Criteria/Objectives - TID Upper Lateral 4

Parameters	Secondary MCL	U.S. EPA NAWQC	Maximum Calendar Annual Average Effluent Concentration	Maximum Daily Effluent Concentration
Chloride (mg/L)	250, 500, 600	860 1-hour / 230 4-day	108	124
EC (µmhos/cm) or TDS (mg/L)	EC 900, 1,600, 2,200 or TDS 500, 1,000, 1,500	N/A	EC 1,032 or TDS 690	EC 1,341 or TDS 865
Sulfate (mg/L)	250, 500, 600	N/A	106	125

Table F-11 Notes:

1. **Agricultural Water Quality Objectives.** Applicable agricultural water quality objectives vary. Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality Objectives, section 4.2.2.1.9 of the Basin Plan.

However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

2. **Secondary MCLs.** Secondary MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
3. **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
4. **Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for EC is 900 $\mu\text{mhos/cm}$ as a recommended level, 1600 $\mu\text{mhos/cm}$ as an upper level, and 2200 $\mu\text{mhos/cm}$ as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.
5. **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(b) **RPA Results.**

- (1) **Chloride.** Chloride concentrations in the effluent ranged from 54 mg/L to 124 mg/L, with an average of 106 mg/L. These levels do not exceed the Secondary MCL. Only one background chloride sample is available for the TID Upper Lateral 4 and resulted in a chloride concentration of 3.7 mg/L.
 - (2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's monitoring reports shows an average effluent EC of 1070 $\mu\text{mhos/cm}$, with a range from 768 $\mu\text{mhos/cm}$ to 1341 $\mu\text{mhos/cm}$. These levels exceed the Secondary MCL recommended level but do not exceed the upper level. The background TID Upper Lateral 4 EC averaged 175 $\mu\text{mhos/cm}$.
 - (3) **Sulfate.** Sulfate concentrations in the effluent ranged from 80 mg/L to 125 mg/L, with an average of 106 mg/L. These levels do not exceed the Secondary MCL. Only one background sulfate sample is available for the TID Upper Lateral 4 and resulted in a sulfate concentration of 3.7 mg/L.
- (c) **WQBEL's.** As discussed above, the discharge does not have reasonable potential to cause or contribute to an instream excursion of water quality objectives for salinity. However, allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, this Order includes a performance-based effluent limitation of 1,250 $\mu\text{mhos/cm}$ for EC to be applied as a calendar annual average effluent limitation (AAEL) to limit the discharge to current levels. Furthermore, in order to ensure

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

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

The Phase 1 Compliance pathways are: 1) Conservative Salinity Permitting Approach, which utilizes the existing regulatory structure and focuses on source control, conservative salinity limits on the discharge, and limits the use of assimilative capacity and compliance time schedules; and, 2) Alternative Salinity Permitting Approach, which is an alternative approach to compliance through implementation of specific requirements such as participating in the Salinity Prioritization and Optimization Study (P&O) rather than the application of conservative discharge limits.

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

- (d) **Plant Performance and Attainability.** Based on 174 samples obtained between September 2016 and July 2019, the maximum annual average EC concentration was 1,126 $\mu\text{mhos/cm}$. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.
- e. **Constituents with No Data or Insufficient Data. –Not Applicable.**
- f. **Constituents with Reasonable Potential – Discharge Point 001 - San Joaquin River.** 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, chlorine residual, chlorodibromomethane, dichlorobromomethane, pH, nitrate, pathogens, and salinity in the San Joaquin River 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 2013 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (2013 Criteria), recommends acute (1-hour average; criteria maximum concentration or CMC) 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.

The 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including toxicity data on sensitive freshwater unionid mussels, non-pulmonary snails, and other freshwater organisms. The inclusion of new toxicity data for unionid mussels resulted in substantially more stringent criteria. In many cases, current wastewater treatment technologies are not capable of complying with effluent limitations based on the more stringent criteria.

The Central Valley Clean Water Association (CVCWA) organized a coordinated effort for POTWs within the Central Valley Region, the Freshwater Mussel Collaborative Study for Wastewater Treatment Plants, to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria could be implemented in the Central Valley Region. Phase I, completed in June 2015, included a State of Knowledge Report developed by a consultant team consisting of Robertson-Bryan, Inc., Larry Walker Associates, and Pacific EcoRisk. The collaborative study involved policy and permitting discussions among representatives from the Central Valley Water Board, U.S. EPA, United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and regional mussel experts regarding the implementation of the 2013 Criteria in POTW NPDES permits. The discussions evaluated permitting approaches that provide reasonable protection of aquatic life beneficial uses, including protection of freshwater mussels.

The State of Knowledge Report explained that the species of freshwater mussels in waters within the Central Valley Region are different than what U.S. EPA used in the toxicity dataset for development of the 2013 Criteria. The State of Knowledge Report indicated that one resident freshwater mussel species was shown to not be as sensitive as the eastern mussel species

used to derive the 2013 Criteria. However, the sensitivity of the other Central Valley Region mussel species was unknown.

Initial work under this project indicated the need to understand whether freshwater mussels are present or absent in POTW receiving waters in order to properly permit the discharge of ammonia in NPDES permits. Hence, a Phase II of the CVCWA study was conducted that developed and validated an effective environmental DNA (eDNA) method for determining the presence/absence of the three freshwater mussel genera in water bodies of the Central Valley. A Phase IIb of the study involved further study and application of the eDNA methodology.

CVCWA submitted the Phase IIc Freshwater Mussel Collaborative Study for Wastewater Treatment Plants: Ammonia Criteria Recalculation Final Report, dated January 2020 (Criteria Recalculation Report) developed by the same consultant team. The Criteria Recalculation Report provides toxicity studies demonstrating all freshwater mussel species present in Central Valley Region waters are less sensitive than the eastern species used to develop the 2013 Criteria.

U.S. EPA developed the Guidelines for Deriving Numerical Aquatic Site-Specific Water Quality Criteria by Modifying National Criteria (EPA-600/S3-84-099 December 1984) that provides a Recalculation Procedure. U.S. EPA also developed the Revised Deletion Process for the Site-Specific Recalculation Procedure for Aquatic Life Criteria (EPA-823-R-13-001, April 2013) to guide the development of a site-specific toxicity dataset that is appropriate for deriving a site-specific aquatic life criterion, by modifying the national toxicity dataset for the pollutant of concern through correcting, adding, and/or deleting test results.

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

A draft Criteria Recalculation Report was provided to the Central Valley Water Board, U.S. EPA Region 9, U.S. EPA Office of Science and Technology, USFWS, and the Nature Conservancy. Comments were provided by Central Valley Water Board staff and U.S. EPA Office of Science and Technology. U.S. EPA agreed with the recalculation procedure for developing site-specific acute criterion. However, U.S. EPA recommended a more conservative approach for utilizing the acute-to-chronic ratio procedure for developing the site-specific chronic criterion.

The final Criteria Recalculation Report addressed the comments and provided revised equations for the chronic criterion in Appendix D.

The Basin Plans' Policy for Application of Water Quality Objectives requires the Central Valley Water Board to consider, "...on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations...In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective."

The Central Valley Water Board finds that the site-specific ammonia criteria provided in the January 2020 Criteria Recalculation Report implement the Basin Plan's narrative toxicity objective to protect aquatic life beneficial uses of the receiving water. This Order implements the site-specific acute and chronic criteria for ammonia provided by the January 2020 Criteria Recalculation Report, with the adjustments to the chronic criteria recommended by U.S. EPA.

Site-specific Criteria for the San Joaquin River. Similar to the U.S. EPA 2013 Criteria, the recalculated site-specific criteria developed in the Criteria Recalculation Report for the acute and chronic criteria are presented based on equations that vary according to pH and temperature. The pH and temperature speciation relationships developed by U.S. EPA were utilized without modification. Equations were developed for situations where freshwater mussels are present and where they are absent. In this case, for the San Joaquin River freshwater mussels have been assumed to be present. In addition, the recalculated criteria include equations that provide enhanced protection for important salmonid species in the genus *Oncorhynchus*, that can be implemented for receiving waters where salmonid species are present. Because the San Joaquin River has a beneficial use of cold freshwater habitat and the presence of salmonids in the San Joaquin River is well-documented, the criteria equations for waters where salmonids are present were used.

The maximum observed 30-day rolling average temperature and the maximum observed pH of the receiving water were used to calculate the 30-day CCC. The maximum observed 30-day average receiving water temperature during the summer season

(16 April – 31 October) was 78°F (27°C), for the rolling 30-day period ending 2 August 2018. The maximum observed 30-day average receiving water temperature during the winter season (1 November – 15 April) was 62°F (17°C), for the rolling 30-day period ending 6 November 2018. The maximum observed receiving water pH value during the summer season was 7.4 on 14 September 2016. The maximum observed receiving water pH value during the winter season was 7.8 on 21 February 2018. Using a pH value of 7.4 and the worst-case temperature value of 78°F (27°C) on a rolling 30-day basis for the summer season, the resulting 30-day CCC is 1.4 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 1.4 mg/L (as N), the 4-day average concentration that should not be exceeded during the summer season is 3.6 mg/L (as N). Using a pH value of 7.4 and the worst-case temperature value of 78°F (27°C) on a rolling 30-day basis for the winter season, the resulting 30-day CCC is 2.5 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 2.5 mg/L (as N), the 4-day average concentration that should not be exceeded during the winter season is 6.3 mg/L (as N).

- (b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan narrative toxicity objective. Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA

corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains final seasonal WQBELs for ammonia. For the summer season the AMEL and AWEL for ammonia (as N) during the summer season are 1.3 mg/L and 3.7 mg/L, respectively, and the AMEL and AWEL for ammonia (as N) during the winter season are 2.2 mg/L and 6.8 mg/L, respectively based on the objective.

- (d) **Plant Performance and Attainability.** Based on 268 sample results for the effluent collected between September 2016 and September 2019, the maximum weekly effluent ammonia concentration was 3.8 mg/L. The effluent exceeded the applicable summer season AWEL once but did not exceed the applicable summer season AMEL. The effluent did not exceed any applicable effluent limitations during the winter season. The exceedance occurred during a period when maintenance activities caused a spike in ammonia and the value is not representative of Facility performance. Typically, the Facility removes ammonia to concentrations that are not detectable in the effluent with an MDL of 0.5 mg/L. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible

ii. **Chlorine Residual**

- (a) **WQO.** U.S. EPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective.
- (b) **RPA Results.** The concentrations of chlorine used to disinfect wastewater are high enough to harm aquatic life and violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore does exist and effluent limits are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State

water quality standard, including State narrative criteria for water quality.” For priority pollutants, the SIP dictates the procedures for conducting the RPA. Chlorine is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. Although the Discharger dechlorinates 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 U.S. EPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour

limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L, respectively, based on U.S. EPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

- (d) **Plant Performance and Attainability.** Based on 1,064 samples obtained between September 2016 and July 2019, chlorine residual was not detected in the effluent with a method detection limit of 0.01 mg/L. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iii. Chlorodibromomethane

- (a) **WQO.** The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed.
- (b) **RPA Results.** The MEC for chlorodibromomethane was 15.9 µg/L based on 57 samples collected between September 2016 and July 2019. Chlorodibromomethane was not detected in the upstream San Joaquin River based on 12 samples collected between January 2017 and December 2017 (MDL 0.2 µg/L). A sample collected from the San Joaquin River on 8 April 2019, identified that chlorodibromomethane was not detected above a detection limit of 0.02 µg/L.. 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 in both the San Joaquin River.
- (c) **WQBEL's.** Ambient monitoring conducted in the San Joaquin River demonstrates that the San Joaquin River has assimilative capacity for chlorodibromomethane. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for chlorodibromomethane of 110 was allowed in the development of WQBEL's for chlorodibromomethane. For the discharge of treated effluent to the San Joaquin River, this Order contains a final AMEL and MDEL for chlorodibromomethane of 40 µg/L and 69 µg/L, respectively, based on the CTR criterion for the protection of human health.
- (d) **Plant Performance and Attainability.** Based on 57 samples obtained between September 2016 and July 2019, chlorodibromomethane was detected in the effluent 57 times with a maximum concentration of 15.9 µg/L. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iv. **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.
- (b) **RPA Results.** The MEC for dichlorobromomethane was 46.6 µg/L based on 59 samples collected between September 2016 and July 2019. Dichlorobromomethane was not detected in the upstream San Joaquin River based on 12 samples collected between January 2017 and December 2017 (MDL 0.2 µg/L). A sample collected from the San Joaquin River on 8 April 2019, identified that dichlorobromomethane was not detected above a detection limit of 0.01 µg/L. 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 in both the San Joaquin River.
- (c) **WQBEL's – San Joaquin River.** Ambient monitoring conducted in the San Joaquin River demonstrates that the San Joaquin River has assimilative capacity for dichlorobromomethane. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for dichlorobromomethane of 83 was allowed in the development of WQBEL's for dichlorobromomethane in the San Joaquin River. This Order contains a final AMEL and MDEL for dichlorobromomethane of 43 µg/L and 68 µg/L, respectively, based on the CTR criterion for the protection of human health.
- (d) **Plant Performance and Attainability.** Based on 59 samples obtained between September 2016 and July 2019, dichlorobromomethane was detected in the effluent 59 times with a maximum concentration of 46.3 µg/L. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

v. **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 Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia).

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

be characterized for the possibility of chlorine and ammonia problems.” (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threat to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. 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/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan’s narrative chemical constituents’ objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite 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 Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL’s are required.

- (c) **WQBEL’s.** Order R5-2017-0027 included dilution credits for nitrate and nitrite. However, as a result of recent upgrades to the Facility, the Discharger is able to comply with the Primary MCL for nitrate and nitrite without the application of dilution credits. Therefore, dilution credits are not applied for development of the WQBEL’s for nitrate plus nitrite. This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 13 mg/L, respectively, based on the Basin Plan’s narrative chemical constituents’ objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data for nitrate plus nitrite shows that the MEC of 27.4 mg/L is greater than the applicable AMEL. However, the Discharger has indicated that recent upgrades to the treatment train at the Facility has optimized the nitrogen removal process. Since implementing these recent changes, analysis of the effluent data for nitrate plus nitrite shows that between June 2019 and July 2019 the MEC for nitrate plus nitrite of 5.6 mg/L is less than the applicable AMEL. The Central Valley Water Board concludes,

therefore, that immediate compliance with this effluent limitation is feasible.

vi. **Pathogens**

- (a) **WQO.** DDW has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 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) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 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 beneficial uses of both the San Joaquin River and the TID Upper Lateral 4 include municipal and domestic supply, 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 10NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD₅, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBEL's for BOD₅ and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD₅ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD₅ and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD₅ and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD₅ and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's for BOD₅ and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD₅ and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

- (d) **Plant Performance and Attainability.** The Facility provides tertiary treatment and utilizes a chlorine disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vii. **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) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 1061 samples taken from September 2016 to July 2019, the maximum pH reported was 7.9 and the minimum was 6.4. The Facility exceeded the instantaneous maximum effluent limitation 8 times and was below the instantaneous minimum once

between September 2016 and July 2019. 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 for the Facility's discharge to the San Joaquin River based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Based on 1061 samples taken from September 2016 to July 2019, the maximum effluent pH reported was 7.9 and the minimum effluent pH was 6.4. On 8 occasions the effluent pH was above the instantaneous maximum and only once was the effluent pH below the instantaneous minimum. The Facility does have proper pH controls in place, and when in proper operation the control of effluent pH leaving the Facility is possible. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

- g. **Constituents with Reasonable Potential – Discharge Point 003 – TID Upper Lateral 4.** 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 chlorodibromomethane, dichlorobromomethane, pH, nitrate, pathogens, and salinity in the TID Upper Lateral 4. 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. **Chlorodibromomethane**

- (a) **WQO.** The CTR includes a criterion of 0.41 µg/L for CDBM for the protection of human health for waters from which both water and organisms are consumed.
- (b) **RPA Results.** The MEC for CDBM was 15.9 µg/L based on 57 samples collected between September 2016 and July 2019. CDBM was not detected in the background TID Upper Lateral 4 based on two samples between August 2016 and October 2018 (MDL 0.02 µg/L). Therefore, CDBM 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 in the TID Upper Lateral 4.
- (c) **WQBEL's.** Ambient monitoring conducted in the TID Upper Lateral 4 demonstrates that the TID Upper Lateral 4 has assimilative capacity for CDBM. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for CDBM of 92 was allowed in the development of WQBEL's for CDBM. For the discharge of treated effluent to the TID Upper Lateral 4, this Order contains a final AMEL and MDEL for CDBM of 36 µg/L and 63 µg/L, respectively, based on the CTR criterion for the protection of human health.
- (d) **Plant Performance and Attainability.** Based on 57 samples obtained between September 2016 and July 2019, CDBM was detected in the effluent 57 times with a maximum concentration of 15.9 µg/L. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

ii. **Dichlorobromomethane**

- (a) **WQO.** The CTR includes a criterion of 0.56 µg/L for DCBM for the protection of human health for waters from which both water and organisms are consumed.
- (b) **RPA Results.** The MEC for DCBM was 46.6 µg/L based on 59 samples collected between September 2016 and July 2019. DCBM was not detected in the background TID Upper Lateral 4 based on two samples between August 2016 and October 2018

(MDL 0.01 µg/L). Therefore, DCBM 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 in the TID Upper Lateral 4.

- (c) **WQBEL's.** Ambient monitoring conducted TID Upper Lateral 4 demonstrates that the TID Upper Lateral 4 has assimilative capacity for DCBM. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for DCBM of 102 was allowed in the development of WQBEL's for DCBM in the TID Upper Lateral 4. For the discharge of treated effluent to the TID Upper Lateral 4, this Order contains a final AMEL and MDEL for DCBM of 57 µg/L and 91 µg/L, respectively, based on the CTR criterion for the protection of human health.
- (d) **Plant Performance and Attainability.** Based on 59 samples obtained between September 2016 and July 2019, DCBM was detected in the effluent 59 times with a maximum concentration of 46.3 µg/L. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iii. 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 Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia).

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant

parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threat to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. 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/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate

and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan's narrative chemical constituents' objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite 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 Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL's are required.

- (c) **WQBEL's.** This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 µg/L and 13 µg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data for nitrate plus nitrite shows that the MEC of 27.4 mg/L is greater than the applicable AMEL. However, the Discharger has indicated that recent upgrades to the treatment train at the Facility has optimized the nitrogen removal process. Since implementing these recent changes, analysis of the effluent data for nitrate plus nitrite shows that between June 2019 and July 2019 the MEC for nitrate plus nitrite of 5.6 mg/L is less than the applicable AMEL. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

iv. **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) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State

water quality standard, including State narrative criteria for water quality.” For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 1061 samples taken from September 2016 to July 2019, the maximum pH reported was 7.9 and the minimum was 6.4. The Facility exceeded the instantaneous maximum effluent limitation 8 times and was below the instantaneous minimum once between September 2016 and July 2019. 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 for the Facility’s discharge to the TID Upper Lateral 4 based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Based on 1061 samples taken from September 2016 to July 2019, the maximum effluent pH reported was 7.9 and the minimum effluent pH was 6.4. On 8 occasions the effluent pH was above the instantaneous maximum and only once was the effluent pH below the instantaneous minimum. The Facility does have proper pH controls in place, and when in proper operation the control of

effluent pH leaving the Facility is possible. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

- a. This Order includes WQBEL's for ammonia, BOD, chlorine residual, chlorodibromomethane, dichlorobromomethane, pH, nitrate, TSS, and salinity. 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:

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

where:

ECA = effluent concentration allowance

D = dilution credit

C = the priority pollutant criterion/objective

B = the ambient background concentration.

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

- c. **Primary and Secondary MCLs.** For non-priority pollutants with primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the 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 ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional

statistical multipliers. For non-priority pollutants, 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.

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

where:

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

**Summary of Water Quality-Based Effluent Limitations
 Discharge Point No. 001 – San Joaquin River**

Table F-12. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	mg/L	10	15	--
TSS	mg/L	10	15	--
pH	standard units	--	--	Instantaneous Max 8.5 Instantaneous Min 6.5
Chlorodibromomethane	µg/L	40	--	69
Dichlorobromomethane	µg/L	43	--	68
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	1.3	3.7	--
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	2.2	6.8	--
Chlorine, Total Residual	mg/L	--	0.011 (see table note 1. below)	0.019 (see table note 2. below)
Total Coliform Organisms	MPN/100 mL	Once in 30-day period 23	7-day median 2.2	At any time 240
Chlorpyrifos	µg/L	(see table note 3. below)	(see table note 4. below)	--
Diazinon	µg/L	(see table note 3. below)	(see table note 4. below)	--
Electrical Conductivity @ 25°C	µmhos/cm	1,250 (see table note 5. below)		
Mercury, Total	lbs/year	0.82	--	--
Nitrate plus Nitrite	mg/L	10	13	--

Table F-12 Notes:

1. Applied as a 4-day average effluent limitation.
2. Applied as a 1-hour average effluent limitation.
3. Average Monthly Effluent Limitation (AMEL)
 $S(AMEL) = Cd (M-avg)/0.079 + Cc (M-avg)/0.012 \leq 1.0$
 Where:

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

4. Average Weekly Effluent Limitation (AWEL)
 $S(AWEL) = Cd (W-avg)/0.14 + Cc (W-avg)/0.021 \leq 1.0$

Where:

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

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

5. Applied as an annual average effluent limitation.

Summary of Water Quality-Based Effluent Limitations

Discharge Point No. 003 – TID Upper Lateral 4

Table F-13. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	mg/L	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	--
pH	standard units	--	--	Instantaneous Max 8.5 Instantaneous Min 6.5
Chlorodibromomethane	µg/L	36	--	63
Dichlorobromomethane	µg/L	57	--	91
Total Coliform Organisms	MPN/100 mL	Once in 30-day period 23	7-day median 2.2	At any time 240
Nitrate plus Nitrite	mg/L	10	13	--
Electrical Conductivity @ 25°C	µmhos/cm	1,250 (see table note 1. below)	--	--

Table F-13 notes:

1. Applied as an annual average effluent limitation.

5. Whole Effluent Toxicity (WET)

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

practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

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

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

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

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

70%, 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). The table below is chronic WET testing performed by the Discharger from October 2016 through May 2019. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective.

Table F-14. 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 Pseudokirchneriella subcapitata Growth (TUc)
10/3/2016	1.0	1.0	1.0	>1	1.0
10/31/2016	--	--	1.0	>1	--
1/30/2017	--	--	1.0	1.0	--
2/20/2017	--	--	1.0	1.0	--
3/6/2017	1.0	1.0	--	--	1.0
3/20/2017	--	--	1.0	1.0	--
4/24/2017	--	--	1.0	1.3	--
5/15/2017	--	--	1.0	1.0	--
6/19/2017	1.0	1.0	1.0	1.0	1.0
7/24/2017	--	--	1.0	1.0	--
8/21/2017	--	--	1.0	>8	--
9/6/2017	--	--	1.0	2.0	--
9/11/2017	1.0	1.0	--	--	1.0
9/18/2017	--	--	1.0	8.0	--
10/16/2017	--	--	1.0	4.0	--
11/27/2017	--	--	1.0	1.3	--
12/4/2017	1.0	1.0	--	--	1.0
2/12/2018	1.0	1.0	--	--	1.0
4/16/2018	--	--	1.0	>1	--
4/30/2018	--	--	1.0	1.0	--
6/4/2018	1.0	1.0	--	--	1.0
9/10/2018	1.0	1.0	--	--	1.0
9/25/2018	--	--	1.0	1.0	--
10/8/2018	--	--	1.0	1.0	--
10/22/2018	--	--	1.0	1.0	--
11/5/2018	1.0	1.0	1.0	1.0	1.0
3/4/2019	1.0	1.0	1.0	1.0	1.0
5/6/2019	1.0	1.0	1.0	1.0	1.0

- i. **RPA.** No dilution has been granted for chronic whole effluent toxicity. Chronic toxicity testing results exceeding **1** chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between October 2016 and May 2019 the maximum chronic toxicity result was >8 TUc on 21 August 2017 with a percent effect of 53 percent. However, all of the observed toxicity results from this time period were investigated by the Discharger through a toxicity reduction evaluation and were found to be the result of improper bisulfate dosing during the dechlorination process. The Discharger has implemented new bisulfate dosing protocol resulting in toxicity testing returning to levels of 1.0 TUc, therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

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

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires average weekly and average monthly discharge limitations for POTW's unless impracticable. For CDBM and DCBM, average weekly effluent limitations have been replaced with maximum daily effluent limitations in accordance with section 1.4 of the SIP. Furthermore for pH, chlorine residual, and total coliform organisms, weekly average effluent limitations 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 the previous Order, with the exception of effluent limitations for aluminum, ammonia, bis (2-ethylhexyl) phthalate, carbon tetrachloride, and the maximum daily and mass-based effluent limits for BOD₅ and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2015-0027-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

The San Joaquin River is considered an attainment water for aluminum, ammonia, BOD₅, TSS, bis (2-ethylhexyl) phthalate, and carbon tetrachloride because the receiving water is not listed as impaired on the 303(d) list for these constituents. State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility, states, “*The exceptions in section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list.*” As discussed in section IV.D.4, below, removal and relaxation of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the effluent limitations for aluminum, bis (2-ethylhexyl) phthalate, carbon tetrachloride, and the maximum daily and mass-based effluent limits for BOD₅ and TSS, as well as, the relaxation of effluent limitations for ammonia from Order R5-2015-0027-01 meets the exception in CWA section 303(d)(4)(B).

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

test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2015-0027-01 was issued indicates that aluminum, bis (2-ethylhexyl) phthalate, and carbon tetrachloride do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

- i. **Ammonia.** The ammonia effluent limitations have been revised based on site-specific ammonia water quality criteria and based on updated pH and temperature data used for the calculation of the ammonia water quality criteria.
- ii. **Aluminum.** Effluent monitoring data collected between September 2016 and July 2019 indicates that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.
- iii. **Bis (2-ethylhexyl) Phthalate.** Effluent and receiving water monitoring data collected between September 2016 and July 2019 for bis (2-ethylhexyl) phthalate indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.
- iv. **Carbon Tetrachloride.** Effluent and receiving water monitoring data collected between September 2016 and July 2019 for carbon tetrachloride indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

Thus, removal or relaxation of the effluent limitations for aluminum, ammonia, bis (2-ethylhexyl) phthalate, and carbon tetrachloride from Order R5-2015-0027-01 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

4. Antidegradation Policies

a. Discharge Point 001 – San Joaquin River.

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

use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for aluminum, bis (2-ethylhexyl) phthalate, and carbon tetrachloride based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. This Order relaxes effluent limitations for ammonia based on new site-specific ammonia water quality criteria and based on updated pH and temperature data used to calculate the water quality criteria. The removal and relaxation of WQBEL's for these parameters will not result in an increase in pollutants concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal and relaxation of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the removal and relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

This Order also removes maximum daily and mass-based effluent limitations for BOD₅ and TSS based on 40 CFR parts 122.45 (d) and (f). The removal of maximum daily and mass-based effluent limits for BOD₅ 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 BOD₅ and TSS, as well as an average dry weather flow prohibition that limits the amount of flow that can be discharged to the receiving water during dry weather months. 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. The Central Valley Water Board finds that the removal of maximum daily and mass-based effluent limits for BOD₅ and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal of maximum daily and mass-based effluent limits for BOD₅ and TSS is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

The permitted surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

b. **Discharge Point 003 – TID Upper Lateral 4.**

This Order allows for a new discharge of recycled water to the TID Upper Lateral 4 during the irrigation season (1 March through 31 October) for the sole purpose of supplying water to agricultural users from TID's canal system. This discharge will result in an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is necessary and was submitted with the Discharger's ROWD and an addendum was submitted to the Central Valley Water Board on 11 March 2020. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

The Discharger has requested a mixing zone and dilution credits for CDBM and DCBM for the discharge to the TID Upper Lateral 4 (see section IV.C.2.c.ii.b of this Fact Sheet). The recycled water discharge will comply with effluent limitations for CDBM and DCBM established using the requested dilution credits. Likewise, the Discharger can comply with effluent limitations issued in the NPDES permit for all other constituents.

The purposes of discharging recycled water to the TID Upper Lateral 4 is not waste disposal; rather, the discharge is necessary to augment TID irrigation supplies as a component of the Regional Surface Water Supply Project. The Discharger will maximize the amount of effluent discharged to the Delta Mendota Canal for beneficial reuse by downstream water districts because these districts pay the Discharger for this water. As such, the period of discharge to the TID Upper Lateral 4 will be limited to the irrigation season when there is demand within the TID service area for irrigation water. The Discharger's recycled water, along with other irrigation water supplied by TID, will be withdrawn for irrigation within a few miles downstream of the discharge. As such, the operational approach to the TID Upper Lateral 4 discharge will maximize dilution of the Discharger's recycled water and will minimize the amount of recycled water within the receiving water due to downstream withdraws of the water from TID's canal system for irrigation purposes.

Key technical findings from the Discharger's Antidegradation Analysis demonstrate the following:

1. The Facility provides advanced treatment to produce Title 22 quality, tertiary-treated recycled water suitable for unrestricted reuse. The

Discharger is implementing additional measures to control sources of pollutants, including ammonia and nitrate.

2. The Facility will be operated to maximize the discharge of recycled water to the Delta Mendota Canal and to discharge no more than 2,033 AFY to the TID Upper Lateral 4.
3. The Facility will only discharge recycled water to the TID Upper Lateral 4 during the irrigation season for the sole purpose of supplying water to agriculture users from TID's canal system, downstream of the discharge point into the TID Upper Lateral 4.
4. The Facility's recycled water quality meets or exceeds the regulations for best practicable treatment or control as it is defined and intended in State Water Board Resolution No. 68-16.
5. Current and future expected operations of the Facility will achieve compliance with requirements in this Order and will meet receiving water quality criteria/objectives, thereby assuring that a condition of pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the area and the state of California will be maintained.

Based on the above findings determined from this analysis, the discharge of 2,033 AFY recycled water to the TID Upper Lateral 4 during the seasonal irrigation period (1 March through 31 October) is consistent with best practicable treatment or control as it is defined and intended in State Water Board Resolution No. 68-16.

Furthermore, the permitted surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD₅, pH, and TSS. Restrictions on BOD₅, pH, and TSS 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. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to

40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
 Discharge Point 001- San Joaquin River**

Table F-15. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis¹
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	mg/L	AMEL 10 AWEL 15	TTC
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	% Removal	85	CFR
Total Suspended Solids (TSS)	mg/L	AMEL 10 AWEL 15	TTC
Total Suspended Solids (TSS)	% Removal	85	CFR
Chlorodibromomethane	µg/L	AMEL 40 MDEL69	CTR
Dichlorobromomethane	µg/L	AMEL 43 MDEL68	CTR
pH	Standard units	Instantaneous Max 6.5 Instantaneous Min 8.5	BP
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	AMEL 1.3 AWEL 3.7	NAWQC
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	AMEL 2.2 AWEL 6.8	NAWQC
Nitrate plus Nitrite	mg/L	AMEL 10 AWEL 13	MCL
Mercury, Total Recoverable	lbs/year	0.82	FP
Chlorine, Total Residual	mg/L	4-day average 0.011 1-hour average 0.019	NAWQC
Chlorpyrifos	µg/L	(see table note 3 below)	BP
Diazinon	µg/L	(see table note 3 below)	BP
Electrical Conductivity @ 25°C	µmhos/ cm	1,250 (see table note 5 below)	FP
Total Coliform Organisms	MPN/ 100 mL	7-day median 2.2 Once in 30 days 23 At any time 240	Title 22

Parameter	Units	Effluent Limitations	Basis ¹
Acute Toxicity	% Survival	Min of any one bioassay 70% Median for any three conc. Bioassays 90%	BP

Table F-15 Notes:

- DC – Based on the design capacity of the Facility.
 TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
 CFR – Based on secondary treatment standards contained in 40 CFR part 133.
 BP – Based on water quality objectives contained in the Basin Plan.
 CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
 NAWQC – Based on U.S. EPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
 SEC MCL – Based on the Secondary Maximum Contaminant Level.
 TMDL – Based on the TMDL for salinity and boron in the lower San Joaquin River.
 MCL – Based on the Primary Maximum Contaminant Level.
 Title 22 – Based on State Water Board Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
 FP – Based on Facility performance.
- Based on an average dry weather flow of 20 MGD.
- Average Monthly Effluent Limitation (AMEL)

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

$$S(\text{AWEL}) = \text{Cd} (\text{W-avg})/0.14 + \text{Cc} (\text{W-avg})/0.021 \leq 1.0$$
 Where:
 Cd(W-avg) = average weekly diazinon effluent concentration in µg/L
 Cc (W-avg) = average weekly chlorpyrifos effluent concentration in µg/L
- Applied as an annual average effluent limitation.

**Summary of Final Effluent Limitations
 Discharge Point 003- TID Upper Lateral 4
 Table F-16. Summary of Final Effluent Limitations**

Parameter	Units	Effluent Limitations	Basis¹
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	mg/L	AMEL 10 AWEL 15	TTC
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	% Removal	85	CFR
Total Suspended Solids (TSS)	mg/L	AMEL 10 AWEL 15	TTC
Total Suspended Solids (TSS)	% Removal	85	CFR
Chlorodibromomethane	µg/L	AMEL 36 MDEL 63	CTR
Dichlorobromomethane	µg/L	AMEL 57 MDEL 91	CTR
pH	Standard units	Instantaneous Max 6.5 Instantaneous Min 8.5	BP
Nitrate plus Nitrite	mg/L	AMEL 10 AWEL 13	MCL
Electrical Conductivity @ 25°C	µmhos/ cm	1,250 (see table note 2 below)	FP
Total Coliform Organisms	MPN/ 100 mL	7-day median 2.2 Once in 30 days 23 At any time 240	Title 22

Table F-16 Notes:

- DC – Based on the design capacity of the Facility.
 TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
 CFR – Based on secondary treatment standards contained in 40 CFR part 133.
 BP – Based on water quality objectives contained in the Basin Plan.
 CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
 NAWQC – Based on U.S. EPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
 SEC MCL – Based on the Secondary Maximum Contaminant Level.
 TMDL – Based on the TMDL for salinity and boron in the lower San Joaquin River.
 MCL – Based on the Primary Maximum Contaminant Level.
 Title 22 – Based on State Water Board Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
 FP – Based on Facility performance.

2. Applied as an annual average effluent limitation.

F. Land Discharge Specifications - Not Applicable

E. Interim Effluent Limitations. Not Applicable

G. Recycling Specifications

The Discharger indicated in their ROWD that they are currently providing 2.0 MGD of recycled water for cooling purposes to the Walnut Energy Center, a 250 Megawatt power plant owned and operated by the Turlock Irrigation District under a long-term agreement. The Discharger also provides recycled water to the Pedretti Sports Complex for irrigation purposes. The Discharger submitted a Title 22 Engineering Report to DDW in September 2006 to provide tertiary treated recycled water to the Walnut Energy Center and the Pedretti Sports Complex. DDW approved the Title 22 Engineering Report on 7 November 2006. This Order contains the following reclamation specifications requiring compliance with Title 22, Division 4, Chapter 3, Water Recycling Criteria.

1. Reclamation Specifications 1 through 3. These specifications are based on Title 22, Division 4, Section 60301 et. seq.
2. Reclamation Specification 4. This specification is based on Title 22, Sections 60201.230 and 60304 (Disinfected Tertiary Recycled Water).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

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

- a. **Dissolved Oxygen.** The dissolved oxygen receiving surface water limitation is based on the Basin Plan’s dissolved oxygen water quality objective, which contains three parts (see Section V.A.5 of the Limitations and Discharge Requirements). The Facility provides a high level of treatment including tertiary filtration and nitrification, which results in minimal dissolved oxygen impacts in the receiving water. Consequently, weekly receiving water monitoring is required in this Order and is sufficient to evaluate the impacts of the discharge and compliance with this Order. The weekly monitoring data will be used to determine compliance with the

third part of the dissolved oxygen receiving water limitation, and will be assessed, at minimum, using effluent and receiving water dissolved oxygen data to ensure the discharge does not cause the dissolved oxygen concentrations in the receiving water to be reduced below 7 mg/L at any time.

2. **TID Upper Lateral 4.** CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, toxicity, and turbidity.

B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, 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 constituent objective states 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 supply. These include, at a minimum, compliance with MCLs 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 municipal or

domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. 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 section 122.42.

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

B. Special Provisions

1. Reopener Provisions

- a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.
- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations. If the Discharger performs studies to determine site-specific WERs and/or site-specific

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

- d. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the Central Valley [Salinity Alternatives for Long-Term Sustainability \(CV-SALTS\) web page:](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/) (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)
- e. **North Valley Regional Recycled Water Program.** Separate Order R5-2016-0010 (NPDES Permit No. CA0085316) issued to the City of Turlock and City of Modesto currently regulates the combined surface water discharge from the Facility and the City of Modesto Water Quality Control Facility to the Delta Mendota Canal. Order R5-2016-0010 expires 31 March 2021 and the Discharger has requested this Order incorporate the necessary requirements to regulate the discharge from the Facility to the DMC via the North Valley Regional Recycled Water Program rather than renew Order R5-2016-0010. This Order may be reopened to make these changes when the City of Modesto's permit (Order R5-2017-0064) and Order R5-2016-0010 are considered for renewal.

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 October 2016 through May 2019, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

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

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

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

Figure F-3: WET Accelerated Monitoring Flow Chart

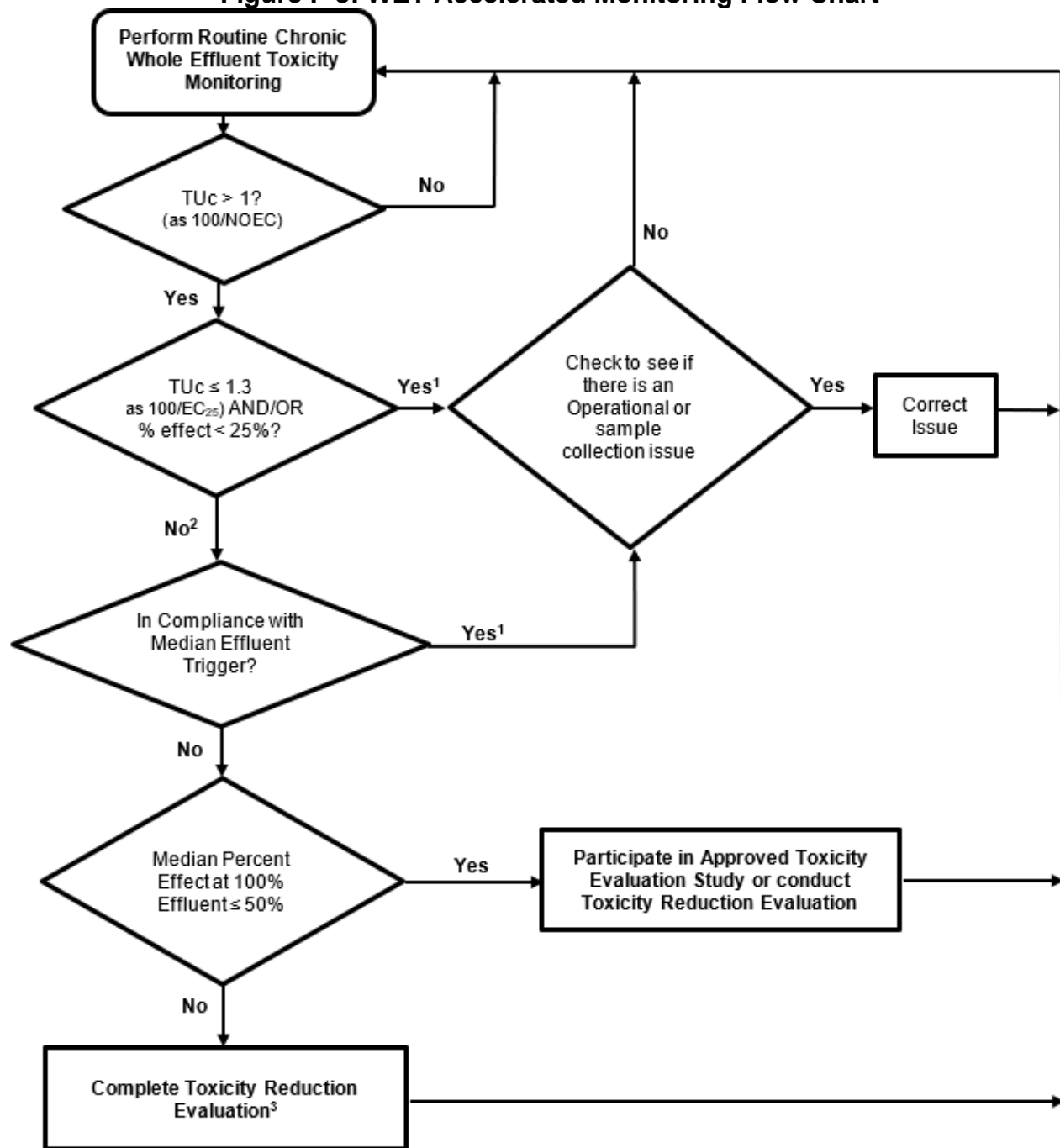


Figure F-3 Notes:

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

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

3. **Best Management Practices and Pollution Prevention**

- a. **Salinity Evaluation and Minimization Plan.** This provision requires the Discharger to continue to implement the existing salinity evaluation and minimization plan and provide a summary report with the Report of Waste Discharge that evaluates the effectiveness of the salinity evaluation and minimization plan in the reduction of salinity in the discharge to the San Joaquin River.

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

- a. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- b. **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 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.
- c. **Emergency Storage Basin Operating Requirements.** When discharges to the emergency storage basin occur, the Discharger shall ensure compliance with the following operation and maintenance requirements:
 - i. Objectionable odors originating at the Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
 - ii. The emergency storage basin 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) Vegetation, debris, and dead algae shall not accumulate on the water surface.
 - (d) The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

- iii. Public contact with wastewater shall be precluded through such means as fences, signed, and other acceptable alternatives.
- iv. Freeboard in the emergency storage basin shall not be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the emergency storage basin, no overflow of the emergency storage basin occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

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

a. Pretreatment Requirements.

- i. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.
- ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or U.S. EPA may take enforcement actions against the Discharger as authorized by the CWA.

- b. Sludge/Biosolids Treatment or Discharge Specifications.** Sludge 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 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. 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 onsite to prevent nuisance, protect public health, and protect groundwater quality.

- c. Resource Recovery from Anaerobically Digestible Material.** Some POTWs choose to accept organic material such as food waste, fats, oils,

and grease into their anaerobic digesters for co-digestion to increase production of methane and other biogases for energy production and to prevent such materials from being discharged into the collection system, which could cause sanitary sewer overflows. The California Department of Resources Recycling and Recovery has proposed an exemption from requiring Process Facility/Transfer Station permits where this activity is regulated under waste discharge requirements or NPDES permits. The proposed exemption is restricted to anaerobically digestible material that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The proposed exemption requires that a POTW develop Standard Operating Procedures for the proper handling, processing, tracking, and management of the anaerobically digestible material before it is received by the POTW.

Standard Operating Procedures are required for POTWs that accept hauled food waste, fats, oil, and grease for injection into anaerobic digesters. The development and implementation of Standard Operating Procedures for management of these materials is intended to allow the California Department of Resources Recycling and Recovery to exempt this activity from separate and redundant permitting programs. If the POTW does not accept food waste, fats, oil, or grease for resource recovery purposes, it is not required to develop and implement Standard Operating Procedures.

The Discharger currently accepts hauled-in ADM for direct injection into its anaerobic digester for co-digestion. This provision requires the Discharger to update and implement SOP's for this activity. The requirements of the SOP's are discussed in section VI.C.5.c.

6. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements.

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., BOD₅ and TSS reduction requirements). The monitoring frequencies for flow (continuous), pH (daily), electrical conductivity (weekly), and total dissolved solids (weekly) have been retained from Order No. R5-2015-0027-01.
2. Order R5-2015-0027-01 required daily influent monitoring for BOD₅ and TSS. Monitoring data for BOD₅ and TSS indicates that less frequent monitoring frequencies are sufficient to assess compliance with permit conditions for these constituents. Therefore, influent monitoring frequencies for BOD₅ and TSS have been reduced from daily to 3 times per week.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving waters.
2. Effluent monitoring frequencies and sample types for flow (continuous), pH (continuous), chlorodibromomethane (monthly), dichlorobromomethane (monthly), ammonia (weekly), chlorine residual (continuous), chlorpyrifos (annually), diazinon (annually), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (monthly), nitrate (monthly), total coliform organisms (daily), turbidity (continuous) have been retained from Order R5-2015-0027-01 to determine compliance with effluent limitations for these parameters.
3. Order R5-2015-0027-01 required daily effluent monitoring for BOD₅ TSS, and temperature, weekly effluent monitoring for total dissolved solids, and monthly effluent monitoring for mercury and methyl mercury. Monitoring data for BOD₅, TSS, temperature, mercury, and methyl mercury indicates that less frequent monitoring frequencies are sufficient to assess compliance with permit conditions for these constituents. Therefore, effluent monitoring frequencies for BOD₅, TSS, and temperature have been reduced from daily to 3 times per week, and the effluent monitoring frequency for mercury has been reduced from monthly to quarterly. Methylmercury monitoring is not needed to assess compliance with the mercury effluent limitation. Thus, specific monitoring requirements for methyl mercury have not been retained from Order R5-2015-0027-01.
4. Monitoring data collected over the previous permit term for aluminum, bis (2-ethylhexyl) phthalate, and carbon tetrachloride did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2015-0027-01.
5. This Order contains effluent limits prescribed individually to Discharge Points 001 and 003, and also requires effluent monitoring when discharge is occurring at Discharge point 001 and/or Discharge Point 003. Section IV.A of the Monitoring

and Reporting Program requires the Discharger to monitor the effluent at a common monitoring location (EFF-001) and report the sampling results at separate points of compliance for each Discharge Point as defined in Section II (Table E-1) of the Monitoring and Reporting Program. Effluent from the Facility is conveyed through monitoring location EFF-001 in route to all discharge locations. Requiring the Discharger to monitor at monitoring location EFF-001 and report the sampling results only at compliance points where discharge is occurring will allow the Discharger and Regional Board staff to more easily interpret monitoring requirements. The Discharger will also experience a significant savings in cost of compliance by not conducting duplicative sampling.

C. Whole Effluent Toxicity Testing Requirements

1. Acute Toxicity. Quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. Chronic Toxicity. Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity

D. Receiving Water Monitoring

1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. **San Joaquin River.** Upstream and downstream receiving water monitoring requirements have been retained for flow (weekly, upstream only), pH (weekly), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (quarterly), temperature (weekly), and turbidity (weekly).
- c. **TID Upper Lateral 4.** Upstream and downstream receiving water monitoring requirements have been established for pH (weekly), dissolved oxygen (weekly), electrical conductivity (weekly), temperature (weekly), and turbidity (weekly).

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.

3. Pond Monitoring

Pond monitoring is required to ensure that the discharge to the emergency storage basin complies with the Emergency Storage Basin Operating Requirements in section VI.C.4.c of this Order. Monitoring frequencies and sample types for freeboard (weekly), levee condition (weekly), and odors (weekly), and flow to basin (once per event) have been retained from Order R5-2015-0027-01.

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

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

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the City of Turlock Regional Water Quality 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 the posting of the Notice of Public Hearing concerning the WDRs at the Turlock City Hall (government center) on 24 November 2020, a United States Post Office on 24 November 2020, and the City of Turlock Regional Water Quality Control Facility on 25 November 2020. The Notice of Public Hearing was also published in the Turlock Daily Journal on 14, 21, and 28 November 2020 and 5 December 2020 and on the Central Valley Water Board's Website.

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

B. Written Comments

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

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on 26 May 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: **18/19 February 2021**

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_inst.html)

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

E. Information and Copying

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

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Mr. Tyson Pelkofer at 916-464-4853 or Tyson.pelkofer@waterboards.ca.gov.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	115 (see table note 1 below)	994 (see table note 2 below)	200	1800	630	--	--	--	200	No (see table note 5 below)
Ammonia Nitrogen, Total (as N)	mg/L	3.8	7.39	1.44	3.61 (see table note 3 below)	1.44 (see table note 4 below)	--	--	--	--	Yes
Bis (2-ethylhexyl) Phthalate	µg/L	1.5	1.5	1.8	--	--	1.8	5.9	--	4	No
Carbon Tetrachloride	µg/L	ND	<0.2	0.25	--	--	0.25	4.4	--	0.5	No
Chlorpyrifos	µg/L	<0.01	0.05	0.015	--	--	--	--	0.015	--	No (see table note 5 below)
Chlorodibromomethane	µg/L	15.9	<0.2	0.41	--	--	0.41	34	--	80 (see table note 6 below)	Yes
Diazinon	µg/L	<0.02	<0.02	0.10	--	--	--	--	0.10	--	No (see table note 5 below)

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Dichlorobromomethane	µg/L	46.3	0.05	0.56	--	--	0.56	46	--	80 (see table note 6 below)	Yes
Electrical Conductivity @25°C	µmhos/cm	1,341	1,550	1550	--	--	--	--	1550	--	No
Mercury, Total Recoverable	ng/L	2.1 (see table note 1 below)	5.4 (see table note 2 below)	12	--	--	50	51	12-	2000	No (see table note 5 below)
Nitrate + Nitrite Nitrogen, Total (as N)	mg/L	27.4	1.9	10	--	--	--	--	--	10	Yes

Table notes:

1. Represents the maximum observed average annual effluent concentration
2. Represents the maximum observed average annual background concentration.
3. U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
4. U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
5. See section IV.C.3 of the Fact Sheet (Attachment F) for a discussion of the RPA results.
6. Represents the Primary MCL for total trihalomethanes, which include bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.

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
NA =	Not Available
ND =	Non-detect

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

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Chlorodibromomethane	µg/L	0.41	0.05	0.43	110	1.73	1.39	40.0	69	--
Dichlorobromomethane	µg/L	0.56	0.05	0.35	83	1.59	1.31	43	68	--
Nitrate plus nitrite	mg/L	10	1.9 (see table note 2 below)	0.24	0.0	1.31 See table note 3)	1.21	10	--	13.1

Table notes:

1. Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.
2. Maximum background concentration.
3. AWEL/AMEL multiplier

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

AQUATIC LIFE WQBEL'S CALCULATIONS

Parameter	Units	CMC Criteria	CCC Criteria	B	Effluent CV (see table note 1 below)	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 (see table note 2 below)	AWEL (see table note 3 below)	MDEL (see table note 4 below)
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	3.6	1.4	0.8	0.9	--	--	0.4	1.4	0.7	1.0	1.3	2.7	4.6	1.3	2.7	--
Ammonia Nitrogen, Total (as N) (1 November– 15 April)	mg/L	6.3	2.5	0.8	1.1	--	--	0.3	2.1	0.6	1.6	1.4	3.0	5.5	2.2	4.7	--
Chlorpyrifos	µg/L	0.03	0.02	ND	0	--	--	0.3	0.01	0.5	0.01	1.6	2.7	--	0.01	0.02	--
Diazinon	µg/L	0.16	0.1	ND	0	--	--	1.3	0.05	0.5	0.05	1.6	2.7	--	0.08	0.1	--

Table notes:

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

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