

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0081558
ORDER R5-2021-0003**

**WASTE DISCHARGE REQUIREMENTS
FOR THE CITY OF MANTECA, WASTEWATER QUALITY CONTROL FACILITY
SAN JOAQUIN COUNTY**

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

Table 1. Discharger Information

Discharger:	City of Manteca
Name of Facility:	Wastewater Quality Control Facility
Facility Street Address:	2450 West Yosemite Avenue
Facility City, State, Zip:	Manteca, CA 95337
Facility County:	San Joaquin County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	37° 46' 45"	121° 18' 0"	San Joaquin River

Table 3. Administrative Information

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

I, Patrick Pulupa, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **18 February 2021**.

PATRICK PULUPA, Executive Officer

**WASTE DISCHARGE REQUIREMENTS
TABLE OF CONTENTS**

I.	Facility Information	3
II.	Findings.....	3
III.	Discharge Prohibitions.....	4
IV.	Effluent Limitations and Discharge Specifications	5
	A. Effluent Limitations – Discharge Point 001	5
	1. Final Effluent Limitations – Discharge Point 001	5
	2. Interim Effluent Limitations.....	7
	B. Land Discharge Specifications – Discharge Point LND-001	7
	C. Title 22 Tertiary Recycling Specifications.	11
V.	Receiving Water Limitations	12
	A. Surface Water Limitations.....	12
	B. Groundwater Limitations	14
VI.	Provisions.....	15
	A. Standard Provisions.....	15
	B. Monitoring and Reporting Program (MRP) Requirements	20
	C. Special Provisions.....	20
	1. Reopener Provisions.....	20
	2. Special Studies, Technical Reports and Additional Monitoring Requirements	21
	3. Best Management Practices and Pollution Prevention	23
	4. Construction, Operation and Maintenance Specifications.....	24
	5. Special Provisions for Publicly-Owned Treatment Works (POTWs)	25
	6. Other Special Provisions.....	28
	7. Compliance Schedules	29
VII.	Compliance Determination	29

TABLES

Table 1.	Discharger Information	1
Table 2.	Discharge Location	1
Table 3.	Administrative Information	1
Table 4.	Effluent Limitations	5
Table 5.	Land Discharge Specifications.....	10
Table 6.	Groundwater Limitations.....	14

ATTACHMENTS

Attachment A –	Definitions	1
Attachment B –	Map	1
Attachment C –	Flow Schematic.....	1
Attachment D –	Standard Provisions.....	1
Attachment E –	Monitoring and Reporting Program	1
Attachment F –	Fact Sheet.....	1
Attachment G –	Summary Of Reasonable Potential Analysis	1
Attachment H –	Calculation of WQBEL’S	1

I. FACILITY INFORMATION

Information describing the City of Manteca (Discharger), Wastewater 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.
- 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, VI.C.4.a-c, 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 R5-2015-0026 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.** The average dry weather discharge flow shall not exceed:
 - i. 9.87 MGD, effective immediately until Executive Officer’s written approval of flow increase (Special Provisions VI.C.6.b).
 - ii. 17.5 MGD, effective upon Executive Officer’s written approval of flow increase (Special Provisions VI.C.6.b).

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	milligrams per liter (mg/L)	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	--
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	mg/L	2.0	4.2	--
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	pounds per day (lbs/day) (see table note 1. below)	160	340	--
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	lbs/day (see table note 2. below)	290	610	--
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	mg/L	2.5	6.2	--
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	lbs/day (see table note 1. below)	200	510	--

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	lbs/day (see table note 2. below)	360	910	--
Nitrate Plus Nitrite (as N)	mg/L	10	15.3	--

Table 4 Notes:

- (1) Based on an average dry weather flow of 9.87 million gallons per day (MGD). Effective immediately and until Executive Officer’s written approval of flow increase (Special Provisions VI.C.6.b).
- (2) Based on an average dry weather flow of 17.5 MGD. Effective upon Executive Officer’s written approval of flow increase (Special Provisions VI.C.6.b).

b. **pH:**

- i. 6.5 Standard Units (SU) as an instantaneous minimum.
- ii. 8.5 SU as an instantaneous maximum.

c. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 85 percent.

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

- i. 70%, minimum for any one bioassay; and
- ii. 90%, median for any three consecutive bioassays.

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

g. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured at REC-001:

- i. 2.2 most probable number per 100 milliliter (MPN/100 mL), as a 7-day median.
- ii. 23 MPN/100 mL, more than once in any 30-day period; and
- iii. 240 MPN/100 mL, at any time.

h. **Diazinon and Chlorpyrifos.** Effluent diazinon and chlorpyrifos concentrations shall not exceed the sum of one (1.0) as identified below:

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

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

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

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

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

$$S_{AWEL} = \frac{C_{DW-AVG}}{0.14} + \frac{C_{CW-AVG}}{0.021} \leq 1.0$$

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

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

- i. **Electrical Conductivity @ 25°C.** The effluent calendar year annual average electrical conductivity shall not exceed 1,000 $\mu\text{mhos/cm}$.
- j. **Methylmercury. Effective 31 December 2030.** The effluent calendar year annual methylmercury load shall not exceed 0.38 grams, in accordance with the Delta Mercury Control Program.

2. Interim Effluent Limitations

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

- a. **Mercury, total. Effective immediately and until 30 December 2030,** for a calendar year, the total annual mass discharge of total mercury shall not exceed 90 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (Section IV.A.1.j).

B. Land Discharge Specifications – Discharge Point LND-001

The Discharger shall maintain compliance with the following land application area specifications when applying recycled water to the City owned land application agricultural fields shown in Figure B-2 (Attachment B). Recycled water applied to Land Application Areas for this Facility contains undisinfected secondary municipal wastewater and food processing wastewater from Eckert Cold Storage. Loading calculations shall be performed as specified below.

- 1. **Hydraulic Loading.** The volume of recycled water applied to the use areas shall not exceed agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions. Hydraulic loading of

recycled water and supplemental irrigation water (if any) shall be at agronomic rates designed to:

- a. Maximize crop nutrient uptake.
- b. Maximize breakdown of organic waste constituents in the root zone; and
- c. Minimize the percolation of waste constituents below the root zone.

The Central Valley Water Board recognizes that some leaching of salts is necessary to manage salt in the root zone of crops for production. Leaching shall be managed to minimize degradation of groundwater, maintain compliance with the groundwater limitations of this Order, and to prevent pollution.

- 2. **Total Nitrogen.** Crops shall be grown on the use areas, and cropping activities shall be managed to take up the nitrogen applied, including any fertilizers and manure. The total nitrogen mass loading to Land Application Areas (LAAs) shall not exceed the agronomic rate for the crop grown. Compliance with this requirement shall be determined using published nitrogen uptake rates for the vegetation/crops grown and the following formula.

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

Where:

M = Mass of nitrogen applied to LAA in lb/ac/yr;

C_i = Monthly average concentration of total nitrogen month i in mg/L;

V_i = Volume of wastewater applied to the LAA during calendar month i in millions gallons;

I = the number of the month (i.e., January = 1, February = 2, etc.);

A = Area of the LAA or field irrigated in acres;

8.345 = Unit conversion factor to transform mg/L to lbs/million gallons; and

M_x = Nitrogen mass from other sources (e.g., fertilizer and compost) in pounds.

3. **BOD₅ Loading Rate.** The maximum daily mass of BOD₅ applied to each LAA shall not exceed **300 lbs/acre/day** and shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{A}$$

Where:

M = mass of BOD applied to an LAA in lb/ac/day

C = concentration of BOD in mg/L based on most recent monitoring result

V = volume of wastewater applied to the LAA in millions of gallons per day

A = area of the LAA irrigated in acres;

8.345 = unit conversion factor

4. **Total Dissolved Solids (TDS) Trigger.** The Discharger shall calculate and submit the calendar annual average TDS concentration in the wastewater applied to the Land Application Areas, as measured at LND-001, with the Annual Report due 1 February each year. If the calendar annual average TDS concentration exceeds 600 mg/L, this represents an increase over current performance-based discharge levels, and therefore the Discharger shall conduct an evaluation to determine the reason(s) for the increased TDS concentration and submit the evaluation by 1 May of that year. The evaluation shall include an explanation of the increased concentrations and the Discharger's determination if it represents an increase in mass loading of TDS to the Land Application Areas that would require an Antidegradation Analysis update to demonstrate the increased mass loading is consistent with the Antidegradation Policy. If the Executive Officer determines that an Antidegradation Analysis update is needed, then the Discharger shall submit the report within 90 days of the Executive Officer's written determination.
5. The discharge of waste classified as "hazardous" as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited, and the discharge of waste classified as "designated", as defined in section 13173 of

the Water Code, in a manner that causes violation of groundwater limitations is prohibited.

6. Discharge to the Land Application Areas shall not be performed during rainfall or when the ground is saturated.
7. The irrigation with recycled water shall be managed to minimize erosion within the use areas.
8. Stormwater runoff from the agricultural fields shall not be discharged to any surface waters or surface water drainage courses within thirty days of the last application of irrigation waters.
9. All tailwater shall be managed as described in the Fact Sheet.
10. Areas irrigated with effluent shall be managed to prevent breeding of mosquitoes. More specifically:
 - a. Maximize crop nutrient uptake.
 - b. Maximize breakdown of organic waste constituents in the root zone; and
 - c. Minimize the percolation of waste constituents below the root zone.
11. Land discharge of effluent shall comply with the following setback requirements:

Table 5. Land Discharge Specifications

Setback Definition	Minimum Irrigation Setback (feet)
Edge of land application area to property boundary	50
Edge of land application area to a public road	50
Edge of land application area to an irrigation well	100
Edge of land application area to a domestic water supply well	100
Edge of land application area to a manmade or natural surface water drainage course or spring	25

Table 5 Notes:

- (1) **Setback Definition.** As defined by the wetted area produced during irrigation.
- (2) **Natural Surface Water Drainage Course.** Excluding ditches used exclusively for tailwater return.

12. Undisinfected Secondary Recycled Water for Irrigation of Land Application Areas.
 - a. Recycled water shall be at least Undisinfected Secondary Treated Effluent as defined in Title 22, section 60301.
 - b. For the purpose of this Order, "use area" means an area with defined boundaries where recycled water is used or discharged.
 - c. Recycled water shall be used in compliance with Title 22, section 60304. Specifically, uses of recycled water shall be limited to those set forth in Title 22, section(s) 60304(a), 60304(b), 60304(c), and 60304(d).
 - d. All recycled 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 permits operation by authorized personnel only.
 - e. Use shall be limited to surface irrigation of fodder, fiber, and/or feed crops; No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops that may be eaten raw by humans.
 - f. Grazing of milking animals within the use areas is prohibited.
 - g. Irrigation of the use areas shall occur only when appropriately trained personnel are on duty.
 - h. Use areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.

C. Title 22 Tertiary Recycling Specifications. See Recycled Water General Order WQ 2016-0068-DDW.

1. The turbidity of the filter effluent measured at FIL-001 shall not exceed:
 - a. 2 NTU as a daily average;
 - b. 5 NTU more than 5 percent of the time within a 24-hour period; and
 - c. 10 NTU, at any time.
2. The total coliform organisms in the effluent measured at REC-001 shall not exceed:
 - a. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;
 - b. 23 MPN/100 mL, more than once in any 30-day period; and

- c. 240 MPN/100 mL, at any time.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in 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 dissolved oxygen concentration to be reduced below 5.0 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 discharge shall not cause the following in the San Joaquin River:
- a. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.
 - b. A surface water temperature increase greater than 4°F above the natural temperature of the receiving water at any time or place.

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. Groundwater Limitations

1. Release of waste constituents from any portion of the Facility shall not cause groundwater to:
 - a. Contain any of the following constituents in concentrations statistically greater than water quality objectives or natural background quality, whichever is greater in the table below. The monitoring wells to which these requirements apply are specified in the Monitoring and Reporting Program:

Table 6. Groundwater Limitations

Parameter	Units	Groundwater Limitations	
		Water Quality Objective	Ambient Background Quality
Total Coliform Organisms	MPN/100 mL	<2.2	<2
Total Dissolved Solids	mg/L	1070	280
Nitrate Nitrogen, Total (as N)	mg/L	10	15.3

Table 6 Notes:

- (1) **Nitrate Nitrogen, Total (as N).** Nitrate Nitrogen, Total (as N) groundwater effluent limits shall become **effective 1 April 2026**.

- (2) **Ambient Background Quality.** Background threshold values based on statistical calculation of representative upgradient monitoring well(s).
- (3) **Total Dissolved Solids.** A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately (e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium).
- (4) **Water Quality Objective.** The water quality objectives for total dissolved solids are based on the site-specific study performed by the Discharger and submitted in October 2012.
- (5) **Total Coliform Organisms <2.2.** Measured as a 7-day median.
 - b. Exhibit a pH of less than 6.5 or greater than 8.4 units.
 - c. Impart taste, odor, chemical constituents, toxicity, or color that creates nuisance or impairs any beneficial use.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:
 - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;
 - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- i. New regulations. New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- ii. Land application plans. When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- iii. Change in sludge use or disposal practice. Under 40 CFR section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
 - ii. Controls any pollutant limited in the Order.

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

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

- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by U.S. EPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
 - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.
- j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for

minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

- k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required

by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
- o. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.
- p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- q. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This Order may be reopened to address changes to the Delta Mercury Control Program.
- d. **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.

- g. **Ultraviolet (UV) Disinfection Operating Specifications.** The UV operating specifications in this Order are based on the UV guidelines developed by the National Water Research Institute and American Water Works Association Research Foundation titled, "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse.*" If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications.
- h. **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/](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/))
- g. **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 (U.S. EPA), the revised WQO will be applicable to the San Joaquin River at Vernalis and 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 ii, below.
- ii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic whole effluent toxicity result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:
 - (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as $100/EC_{25}$) 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 $100/EC_{25}$) 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 $100/EC_{25}$) and the percent effect is greater than 25 percent at 100 percent effluent, proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring. See Compliance Determination Section VII.L for procedures for calculating 6-week median.
 - (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE or participate in an approved TES as described in the following subsections.

- (d) **Toxicity Evaluation Study.** If the percent effect is ≤ 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
- (e) **Toxicity Reduction Evaluation.** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:
- (i) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
- Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.

3. Best Management Practices and Pollution Prevention

- a. **Pollution Prevention Plan for Mercury.** The Discharger shall continue to implement pollution prevention plans for mercury in accordance with Water Code section 13263.3(d)(3). The minimum requirements for the pollution prevention plans are outlined in the Fact Sheet (Attachment F, section VI.B.3.a). The Discharger shall provide annual progress reports according to the schedule in the Technical Reports Table. The progress reports shall discuss the effectiveness of the pollution prevention plans in the reduction of mercury in the discharge, include a summary of monitoring results, and discuss updates to the pollution prevention plans.
- b. **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. **Filtration System Operating Specifications. When discharging to the San Joaquin River,** 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.
- b. **Ultraviolet (UV) Disinfection System Operating Specifications.** The UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:
 - i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm^2).
 - ii. **UV Transmittance.** The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at UVS-001 shall not fall below 55 percent.
 - iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.
 - iv. The lamp sleeves must be cleaned periodically as necessary to meet the UV dose requirements.
 - v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.
- c. **Treatment Pond Operating Requirements.**

Unless otherwise specified, the following requirements are applicable to ponds PND-001 (Secondary Effluent Storage Pond), PND-002 (Food Processing Pond), and PND-003 (Secondary Effluent Equalization Pond):

- i. No waste constituent shall be released, discharged, or placed where it will cause a violation of the Groundwater Limitations of this Order.
 - ii. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
 - iii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
 - iv. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - (a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - (b) Weeds shall be minimized.
 - (c) Dead algae, vegetation, and debris shall not accumulate on the water surface.
 - v. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow) as a monthly average and never less than 1 foot at any time.
 - vi. Objectionable odors shall not be perceivable beyond the limits of the Facility property at an intensity that creates or threatens to create nuisance conditions.
 - vii. As a means of discerning compliance with Specification c.iv, the dissolved oxygen (DO) content in the upper one foot of any wastewater treatment or storage pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
 - viii. For the Secondary Effluent Storage Pond (PND-001) only, the pH shall not be less than 6.0 or greater than 9.0.
- d. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

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

a. Pretreatment Requirements

- i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. Part 403, including any subsequent regulatory revisions to 40 C.F.R. Part 403. Where 40 C.F.R. Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.
- ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.
- iii. The Discharger shall perform the pretreatment functions as required in 40 C.F.R. Part 403 including, but not limited to:
 - (a) Implement the necessary legal authorities as provided in 40 CFR Part 403.8(f)(1);
 - (b) Enforce the pretreatment requirements under 40 C.F.R. sections 403.5 and 403.6;
 - (c) Implement the programmatic functions as provided in 40 C.F.R. section 403.8(f)(2); and
 - (d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. section 403.8(f)(3).
- iv. **Pretreatment Reporting Requirements.** Pretreatment reporting requirements are included in the Monitoring and Reporting Program, section X.D.5 of Attachment E.
- b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids

refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. Part 503.

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

Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

- ii. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 C.F.R. Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 C.F.R. Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 C.F.R. Part 503 whether or not they have been incorporated into this Order.
- iii. The Discharger shall comply with section IX.A. Biosolids of the Monitoring and Reporting Program, Attachment E.
- iv. The onsite sludge/biosolids treatment, processing, and storage for the Facility is described in the Fact Sheet (Attachment F, section II.A). Any proposed change in the onsite treatment, processing, or storage of sludge/biosolids shall be reported to the Executive Officer at least **90 days** in advance of the change and shall not be implemented until written approval by the Executive Officer.

- c. **Resource Recovery from Anaerobically Digestible Material.** If the Discharger will receive hauled-in anaerobically digestible material for injection into an anaerobic digester, the Discharger shall notify the Central Valley Water Board and develop and implement Standard Operating Procedures for this activity. The Standard Operating Procedures shall be developed prior to receiving hauled-in anaerobically digestible material. 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. **Phase IV Upgrade and Expansion Project.** The Discharger has requested an expansion of the allowable flows to be discharged to the San Joaquin River. The permitted average dry weather flow may increase to 17.5 MGD upon compliance with the following conditions:
 - i. **Facility Expansion.** The Discharger shall have completed construction of the Phase IV Upgrade and Expansion Project, as described in the Discharger's April 2014 *NPDES Permit Renewal for City of Manteca Wastewater Quality Control Facility (CA0081558)*.
 - ii. **Effluent and Receiving Water Limitation Compliance.** The Discharger shall submit to the Central Valley Water Board a request for an increase in the permitted discharge flow rate, which demonstrates compliance with items i through ii of this provision. The increase in the permitted discharge flow rate shall not be effective until the Executive Officer verifies compliance with Special Provision VI.C.6.b and approves the Discharger's request.

7. Compliance Schedules

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

VII. COMPLIANCE DETERMINATION

- A. **BOD₅ and TSS Effluent Limitations (Section IV.A.1.a and IV.A.1.c).** 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.c 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.
- B. **Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.k and IV.A.2.a).** The procedures for calculating mass loadings are as follows:
 1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the 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.
- C. **Average Dry Weather Flow Effluent Prohibition (Section III.E).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow discharge prohibition will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).
- D. **Total Coliform Organisms Effluent Limitations (Section IV.A.1.g).** 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.

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

$$\text{Mass (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34 \text{ (conversion factor)}$$

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a shall not apply.

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

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
 - a. sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
 - b. sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower

of the two data points where DNQ is lower than a value and ND is lower than DNQ.

4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall **not** be deemed out of compliance.
- G. Temperature Effluent Limitation (Section IV.A.1.e)** Compliance with the effluent limitation for temperature shall be ascertained using the daily average effluent temperature at Monitoring Location EFF-001 and the temperature of the “upstream” receiving water measured on the same day by grab sample at either Monitoring Location RSW-001 or Monitoring Location RSW-002, depending on the direction of the San Joaquin River flow at the time of sampling. Due to the tidal nature of the receiving water, the direction of the San Joaquin River flow at the time of sampling will dictate which monitoring location is representative of the “upstream” receiving water.
- H. Temperature Receiving Water Limitations (Section V.A.14.b).** Compliance with the surface water temperature limitation maintaining the receiving water equal or less than 4°F above the natural temperature of the receiving water will be determined based on the difference in the temperature measured at Monitoring Location RSW-001 compared to the temperature measured at Monitoring Location RSW-002. Due to the tidal nature of the receiving water, the direction of the San Joaquin River flow at the time of sampling will dictate which monitoring location is representative of the “upstream” receiving water and which monitoring location is representative of the “downstream” receiving water.
- I. Dissolved Oxygen Receiving Water Limitation (Section V.A.5).** Compliance shall be determined using data samples from Monitoring Location RSW-002.
- J. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.i)** Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as ND concentrations to be considered to be zero.
- K. Electrical Conductivity Calendar Year Annual Average Effluent Limitation (Section IV.A.1.j).** Compliance shall be determined by calculating the sum of all daily discharges measured during a calendar year divided by the number of daily discharges measured during that year.
- L. 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.

- M. Turbidity Receiving Water Limitations (Section V.A.17.a-e).** Compliance with the turbidity receiving water limitations will be determined based on the difference in turbidity measured at Monitoring Locations RSW-001 and RSW-002.
- N. Use of Delta Regional Monitoring Program and Other Receiving Water Data to Determine Compliance with Receiving Water Limitations.** Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this Order will not be used directly to determine that the discharge is in violation of this Order. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger that is not conducted by the Delta Regional Monitoring Program and submit that monitoring data. As described in section VIII of Attachment E, such data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Order.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

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

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

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

Figure B-1. City of Manteca Wastewater Quality Control Facility Site Map

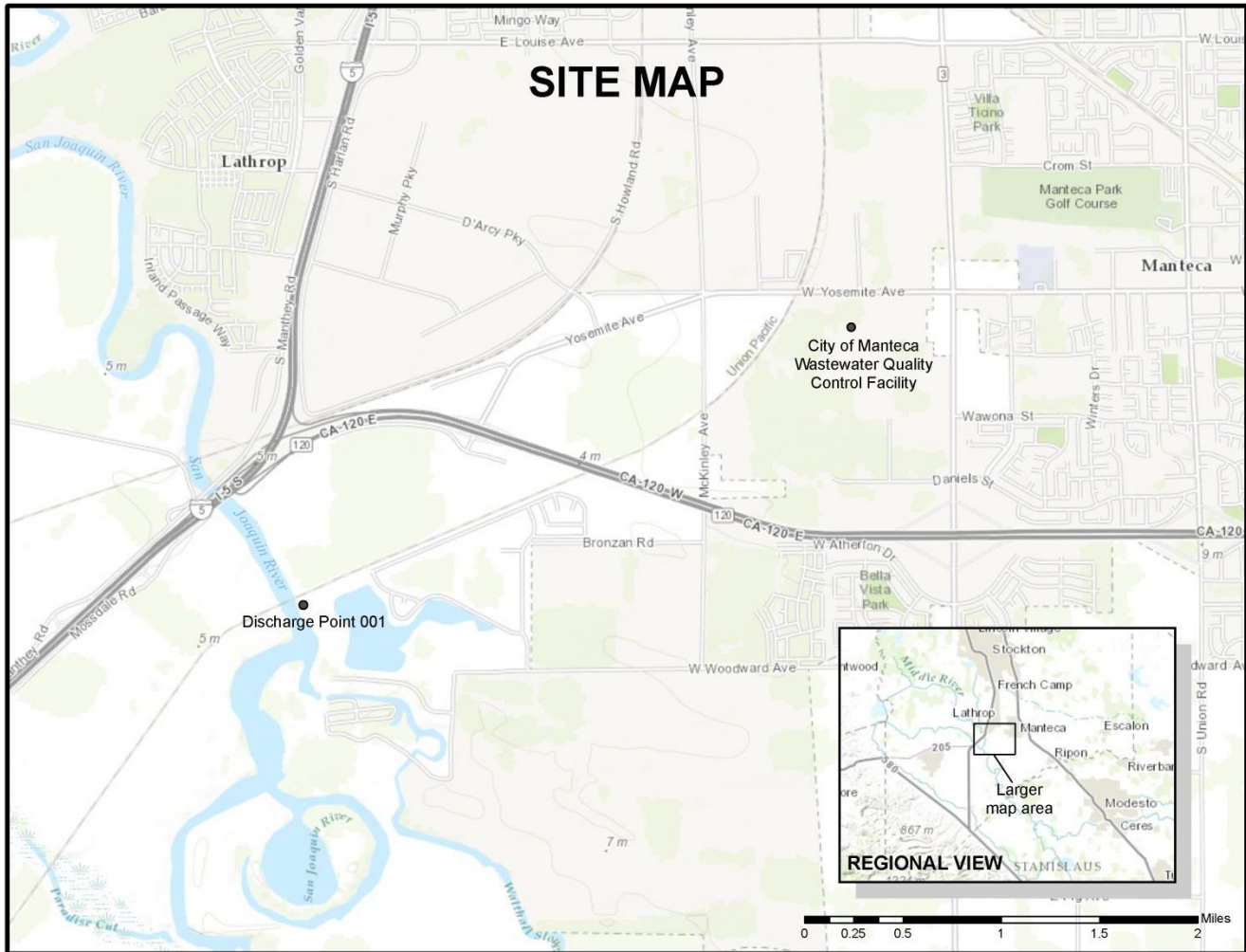


Figure B-2. City of Manteca Wastewater Quality Control Facility Map of Agricultural Fields



Figure B-3. City of Manteca Wastewater Quality Control Facility Map Including Monitoring Locations

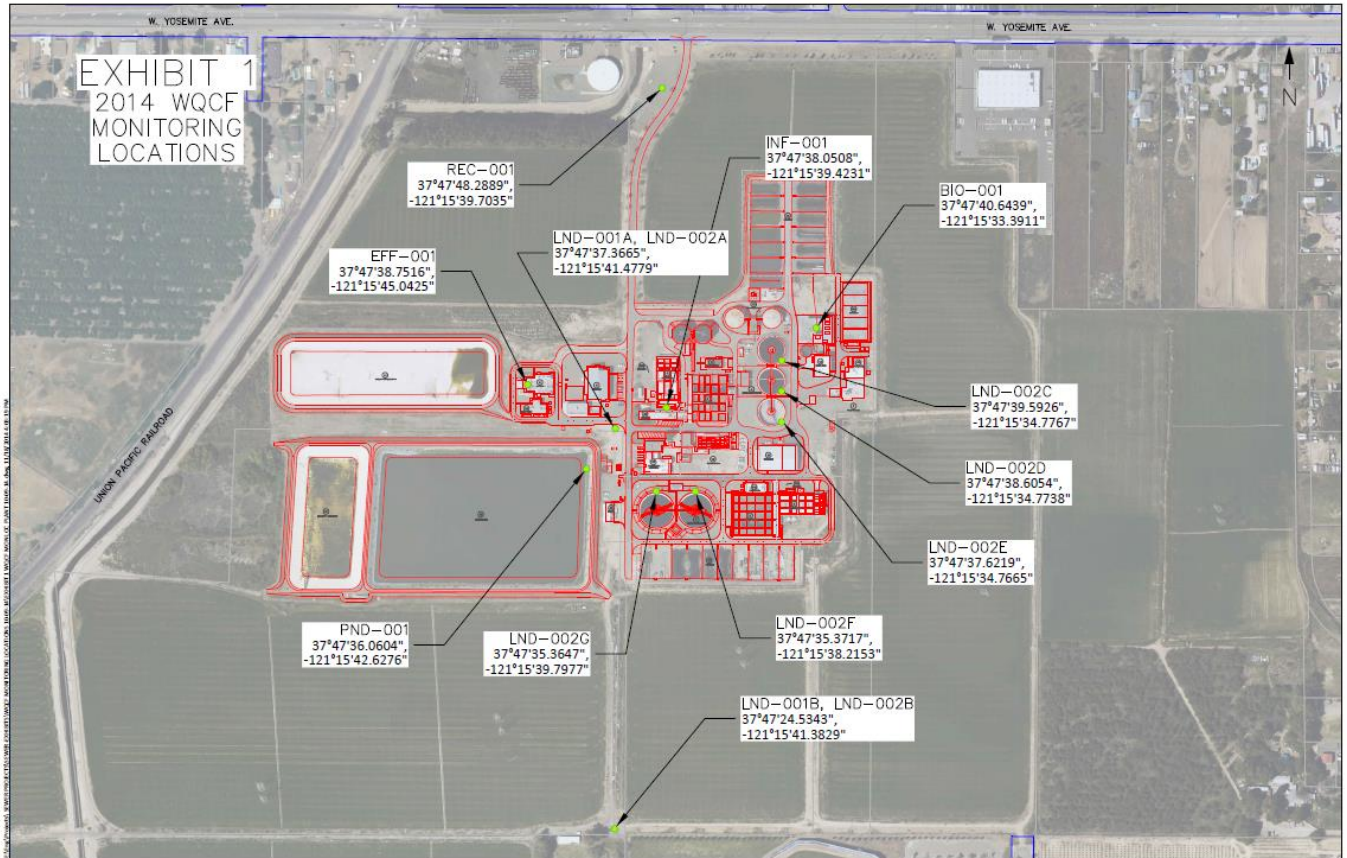


Figure B-4. City of Manteca Wastewater Quality Control Facility Map Including Receiving Water Monitoring Locations

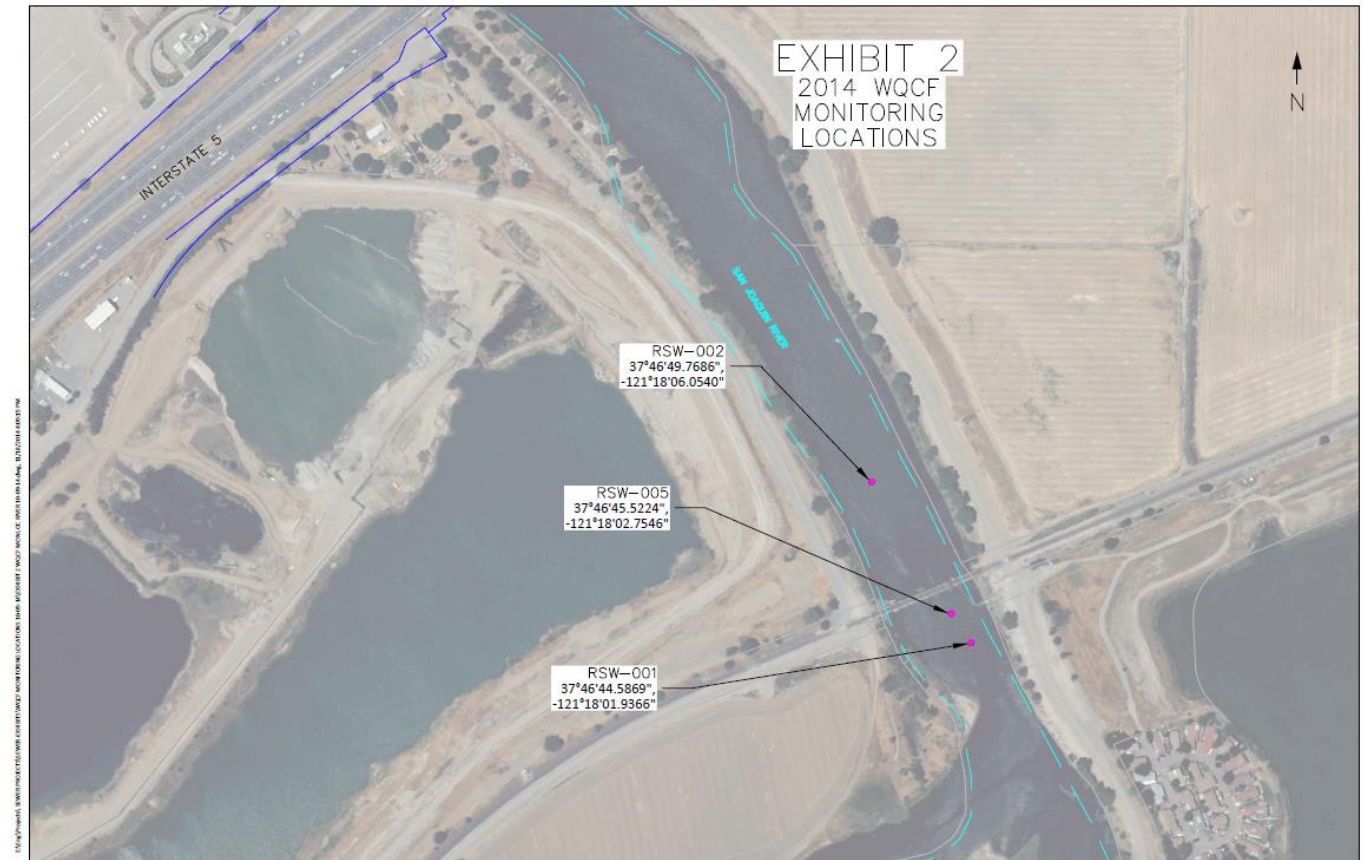
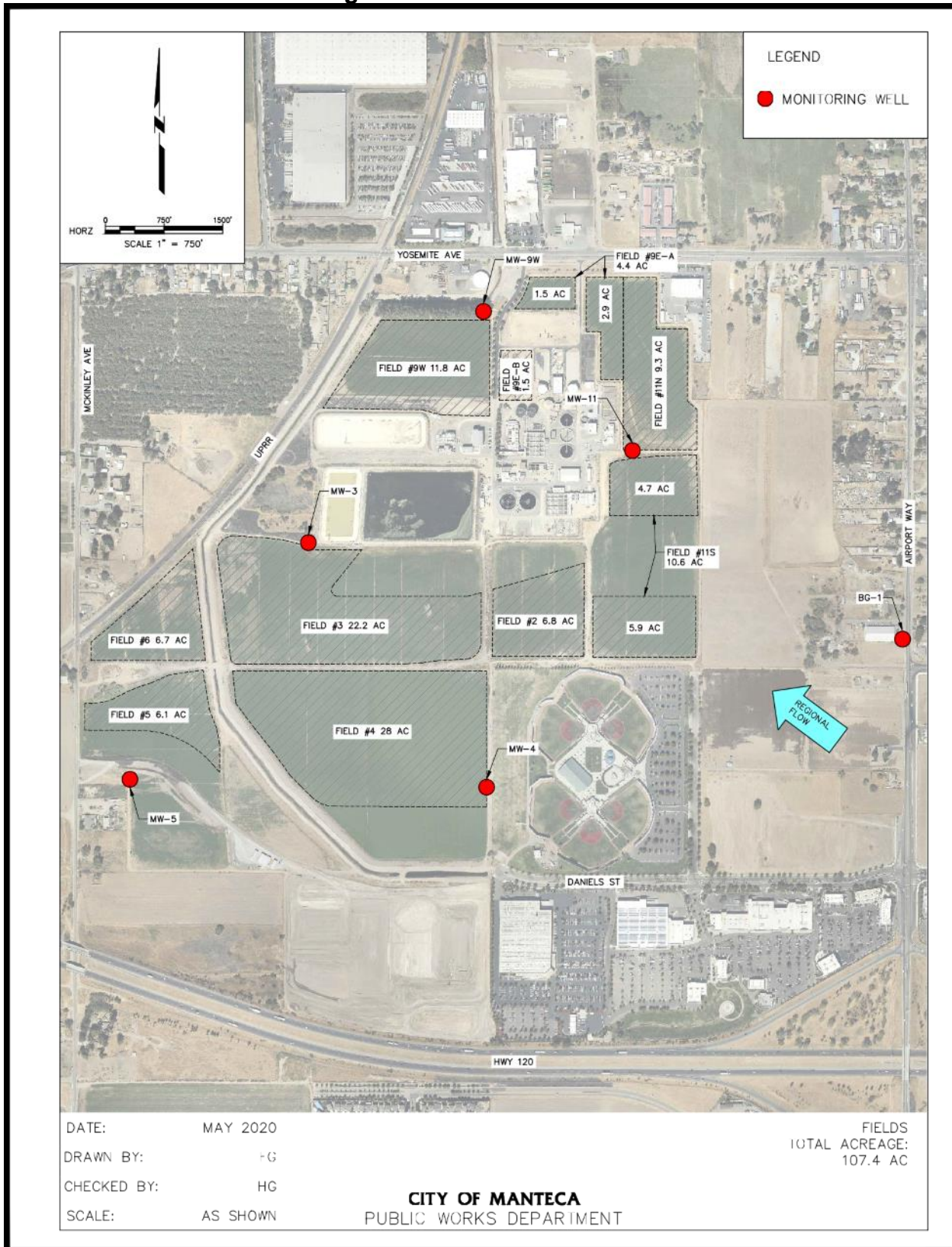


Figure B-5. City of Manteca Wastewater Quality Control Facility Map Including Groundwater Wells Monitoring Locations



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. City of Manteca Wastewater Quality Control Facility Flow Schematic for Existing Facility

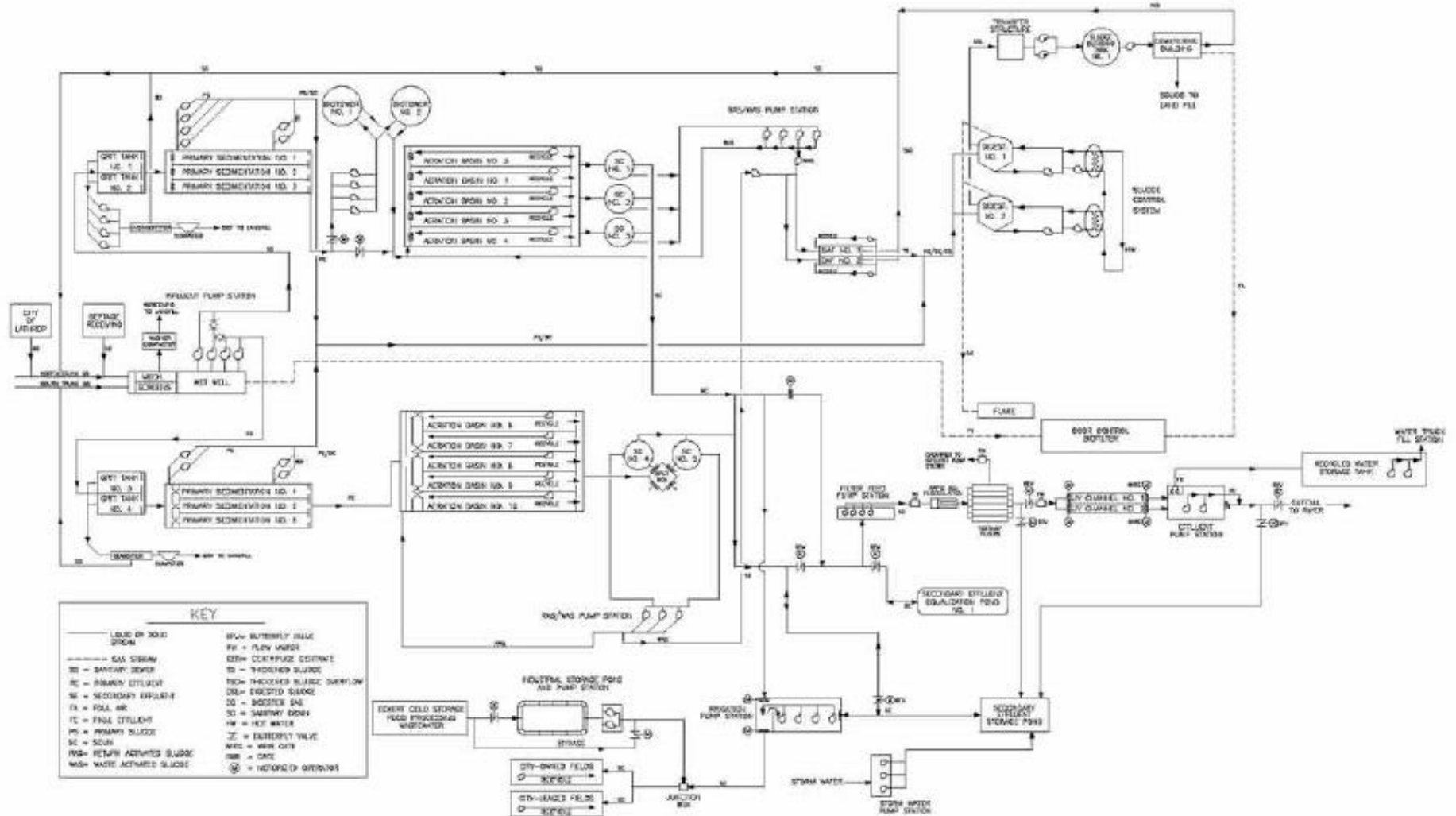
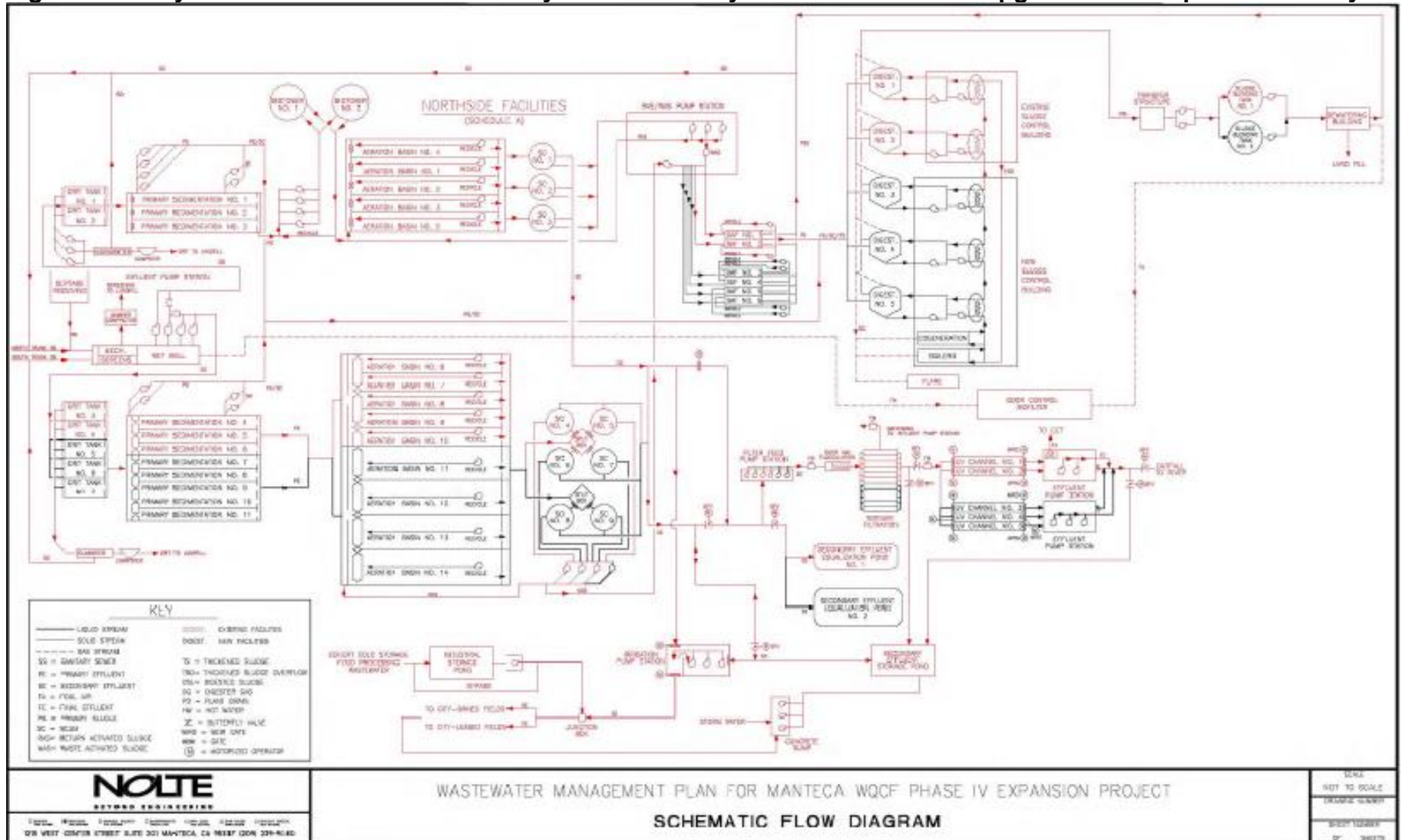


Figure C-2. City of Manteca Wastewater Quality Control Facility Flow Schematic for Upgraded and Expanded Facility



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 include 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/](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/](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

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

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow

outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

As of 21 December 2023 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 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
Table of Contents

I.	General Monitoring Provisions.....	2
II.	Monitoring Locations	3
III.	Influent Monitoring Requirements.....	5
	A. Monitoring Location INF-001.....	5
IV.	Effluent Monitoring Requirements	6
	A. Monitoring Location EFF-001.....	6
V.	Whole Effluent Toxicity Testing Requirements	7
VI.	Land Discharge Monitoring Requirements	12
	A. Wastewater Monitoring Location LND-001	12
	B. Land Application Area Monitoring	12
	C. Agricultural Field Inspections	14
VII.	Recycling Monitoring Requirements	15
	A. Monitoring Location REC-001	15
VIII.	Receiving Water Monitoring Requirements	15
	A. Monitoring Location RSW-001, RSW-002, and RSW-003	16
	B. Monitoring Location MW-3, MW-4, MW-5, MW-9W, MW-11, and MW-AW	17
IX.	Other Monitoring Requirements.....	19
	A. Biosolids	19
	B. Filtration System and Ultraviolet Light (UV) Disinfection System	19
	C. Treatment Pond Monitoring	20
	D. Pyrethroid Pesticides Monitoring	20
	E. Effluent and Receiving Water Characterization	24
X.	Reporting Requirements.....	30
	A. General Monitoring and Reporting Requirements.....	30
	B. Self-Monitoring Reports (SMRs)	30
	C. Discharge Monitoring Reports (DMR's)	34
	D. Other Reports	35

Tables

Table E-1.	Monitoring Station Locations	4
Table E-2.	Influent Monitoring.....	5
Table E-3.	Effluent Monitoring	6
Table E-4.	Chronic Toxicity Testing Dilution Series	9
Table E-5.	Land Application Area Wastewater Monitoring Requirements	12
Table E-6.	Land Application Area Monitoring Requirements	12
Table E-7.	Recycled Water Monitoring Requirements	15
Table E-8.	Receiving Water Monitoring Requirements	16
Table E-9.	Groundwater Monitoring Requirements	17
Table E-10.	Filtration System and UV Disinfection System Monitoring Requirements	19
Table E-11.	PND-001, PND-002, PND-003 Monitoring Requirements	20
Table E-12.	Pyrethroid Pesticides Monitoring	21
Table E-13.	Pyrethroid Pesticide Partition Coefficients	23
Table E-14.	Effluent and Receiving Water Characterization Monitoring	25
Table E-15.	Monitoring Periods and Reporting Schedule	31
Table E-16.	Technical Reports	44

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 field measurements such as pH, DO, EC, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

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

State Water Resources Control Board
Quality Assurance Program Officer
Office of Information Management and Analysis
1001 I Street, Sacramento, CA 95814
- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the Facility influent can be obtained, prior to any additives, treatment processes, and plant return flows.
001	EFF-001	A location where a representative sample of the Facility effluent can be obtained prior to discharge to the receiving water. Latitude: 37° 46' 45" N, Longitude: 121° 18' 0" W
--	LND-001	At irrigation distribution box, where all waste tributary to the irrigation line is present, and is representative of the irrigation reuse waters applied to the agricultural fields.
--	REC-001	Location at the tertiary effluent station where a representative sample of the Facility recycled water can be obtained prior to distribution to the Discharger's customers.
--	RSW-001	In the San Joaquin River, mid-stream approximately 100 feet south of Discharge Point 001.
--	RSW-002	In the San Joaquin River, mid-stream approximately 500 feet north of Discharge Point 001.
--	RSW-003	In the San Joaquin River at the Department of Water Resource (DWR) Monitoring Station at Mossdale Bridge (MSD).
--	MW-3	Compliance groundwater monitoring well located in land-application agricultural Field 3.
--	MW-4	Compliance groundwater monitoring well located in land-application agricultural Field 4.
--	MW-5	Compliance groundwater monitoring well located in land-application agricultural Field 5.
--	MW-9W	Compliance groundwater monitoring well located in land-application agricultural Field 9W.
--	MW-11	Compliance groundwater monitoring well located in land-application agricultural Field 11.
--	MW-AW	Background groundwater monitoring well located on Airport Way, upgradient and approximately 1,200 feet east of the agricultural fields.
--	PND-001	At a point in the Secondary Effluent Storage Pond at which all waste tributary to the pond is present, and is representative of the wastewaters discharged into the pond.
--	PND-002	At a point in the Food Processing Pond at which all waste tributary to the pond is present, and is representative of the wastewaters discharged into the pond.
--	PND-003	At a point in the Secondary Effluent Equalization Pond at which all waste tributary to the pond is present, and is representative of the wastewaters discharged into the pond.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	BIO-001	A location where a representative sample of the biosolids can be obtained prior to removal from the Facility.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.
--	FIL-001	Monitoring of the filter effluent to be measured immediately downstream of the filters prior to the ultraviolet light (UV) disinfection system.
--	UVS-001	A location where a representative sample of wastewater can be collected immediately upstream of the UV disinfection system.
--	UVS-002	A location where a representative sample of wastewater can be collected downstream of the UV disinfection system.

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

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

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

 - 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.
 - 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.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
Biochemical Oxygen Demand (BOD) 5-day @ 20°Celsius	mg/L	24-hour Composite	3/Week
BOD	% removal	Calculate	1/Month
Total Suspended Solids (TSS)	mg/L	24-hour Composite	3/Week
TSS	% removal	Calculate	1/Month
pH	standard units	Grab	1/Day
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week
Chlorpyrifos	µg/L	Grab	1/Year
Diazinon	µg/L	Grab	1/Year
Dissolved Organic Carbon	mg/L	Grab	1/Quarter
Dissolved Oxygen	mg/L	Grab	2/Month
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Month
Hardness, Total (as CaCO3)	mg/L	Grab	1/Quarter
Mercury (methyl)	µg/L	Grab	1/Quarter
Mercury, Total Recoverable	µg/L	Grab	1/Quarter
Nitrate plus Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Week
Temperature	°F	Grab	1/Week
Total Dissolved Solids	mg/L	Grab	1/Quarter

- 2. **Table E-3 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-3:
 - a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

- b. **24-hour composite samples** shall be collected from a 24-hour flow proportional composite.
- c. **Hand-held field meters** may be used for dissolved oxygen, electrical conductivity, temperature, and pH, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- d. **Temperature** and **pH** shall be recorded at the time of **ammonia** sample collection.
- e. **Dissolved Organic Carbon** monitoring shall be conducted concurrently with pH and hardness sampling.
- 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. **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.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the acute toxicity testing requirement:
 - 1. **Monitoring Frequency** – The Discharger shall perform **quarterly** acute toxicity testing, concurrent with effluent ammonia sampling.
 - 2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001
 - 3. **Test Species** – Test species shall be rainbow trout (*Oncorhynchus mykiss*).
 - 4. **Methods** – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall

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

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

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

1. **Monitoring Frequency** – The Discharger shall perform routine **quarterly** chronic toxicity testing. 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.L for procedures for calculating 6-week median.
2. **Sample Types** – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001 The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001 or RSW-002 (whichever location is upstream at the time of sampling), as identified in this Monitoring and Reporting Program.
3. **Sample Volumes** – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. **Test Species** – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with one of the following species that is the most sensitive:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test).
5. **Most Sensitive Species Determination** – Central Valley Water Board staff have determined that the chronic toxicity test results from the Discharger are

inconclusive to determine the most sensitive species. None of the submitted chronic toxicity test results for the most sensitive species determination exceeded the 1 TUC trigger or had a percent effect greater than 25%. Therefore, the Executive Officer is requiring the Discharger to rotate the test species every calendar year.

6. **Most Sensitive Species Monitoring Requirements** – If a single test 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, then the species used in the test shall be established as the most sensitive species **until the next permit renewal**. Otherwise, the species test rotation order shall be as follows:
 - *Ceriodaphnia dubia* **upon the effective date of this Order** through the remainder of this calendar year;
 - *Pimephales promelas* **after** *Ceriodaphnia dubia* for the entire calendar year;
 - *Selenastrum capricornutum* **after** *Pimephales promelas* for the entire calendar year; and
 - Cycling back to *Ceriodaphnia dubia* **after** *Selenastrum capricornutum* for the entire calendar year and back through the same rotation until the next permit renewal.
7. **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.
8. **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.
9. **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

10. **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 accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.
- D. **WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:
 1. Chronic WET Reporting. Routing and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the **quarterly** self-monitoring report, and shall contain, at minimum:
 - a. The results expressed in TUC, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - d. The dates of sample collection and initiation of each toxicity test; and
 - e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the **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 (e.g. Excel spreadsheet).

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.
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.** 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, the Executive Officer shall have

discretion to determine which single species is the most sensitive considering the test results from the species sensitivity screening.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Wastewater Monitoring Location LND-001

1. The Discharger shall monitor the wastewater applied to the Land Application Areas at Monitoring Location LND-001 in accordance with Table E-5 described below:

Table E-5. Land Application Area Wastewater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Fixed Dissolved Solids	mg/L	Grab	1/Week	Monthly
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	Monthly
Total Dissolved Solids	mg/L	Grab	1/Week	Monthly
Biochemical Oxygen Demand (5 day @ 20°C)	mg/L	Grab	1/Week	Monthly
Total Nitrogen	mg/L	Grab	1/Week	Monthly

B. Land Application Area Monitoring

1. The Discharger shall monitor the land application areas daily during operation, and shall submit the results in the corresponding monthly monitoring reports. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. The report shall also document any corrective actions taken based on the observations made.

The Discharger shall perform the following routine monitoring and loading calculations for each LAA field during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports. If irrigation does not occur during a reporting period, the monitoring report shall so indicate in accordance with Table E-6 and the testing requirements described in section VI.B.2 below:

Table E-6. Land Application Area Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Precipitation	0.1 inches	Rain gauge (see table note a. below)	1/Day	Monthly

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Hydraulic Loading Rate	in	Calculated (see table note b. below)	1/Day	Monthly Annually
BOD ₅ loading rate as an irrigation cycle average	lb/ac/day	Calculated (see table note c. below)	1/Day	Monthly
Total Nitrogen loading rate	lb/ac	Calculated (see table note d. below)	1/Week	Monthly Annually
Calendar Annual Average Total Dissolved Solids	mg/L	Calculated (see table note e. below)	1/Week	Annually

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. Data obtained from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable.
 - b. Hydraulic Loading Rate shall be calculated for each LAA field. Volumes can be estimated based on the duration of flow, the number of checks being irrigated at any one time, and the daily flow rates for each field. Calculations and assumptions shall be clearly documented.
 - c. BOD₅ Loading Rate shall be calculated for each LAA field. BOD₅ loading rate shall be calculated using the daily applied volume of wastewater (representative of wastewater measured at LND-001), actual application area, average of the three most recent BOD₅ results for the wastewater, and the number of days per irrigation cycle.
 - d. Total Nitrogen Loading Rate shall be calculated for each LAA field. Total nitrogen loading rates shall be calculated using the applied volume of wastewater (representative of wastewater measured at LND-001), actual application area, average of the three most recent total nitrogen results for the wastewater, and supplemental nitrogen (including commercial fertilizers, etc.).
 - e. Calendar annual average TDS concentration to be calculated as the average of all TDS data collected at LND-001 during the calendar year.

C. Agricultural Field Inspections

1. The Discharger shall inspect the land application areas at least once daily during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly SMR's. The following items shall be documented for each field to be irrigated on that day.
 - a. Evidence of erosion;
 - b. Evidence of berm or levee damage or erosion;
 - c. Evidence of damage to standpipes and flow control valve (if applicable);
 - d. Evidence of improper use of valves;
 - e. Condition of head ditch;
 - f. Soil saturation;
 - g. Ponding;
 - h. Evidence of damage to tailwater ditches and evidence of potential and actual runoff to off-site areas;
 - i. Evidence of potential and actual discharge to surface water;
 - j. Accumulation of organic solids in ditches and at soil surface;
 - k. Soil clogging;
 - l. Odors that have the potential to be objectionable at or beyond the property boundary;
 - m. Evidence of fly and/or mosquito breeding; and
 - n. Temperature, wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notation shall also document any corrective actions taken based on observations made, including fresh water flushing of the force main and head water ditches. A copy of the entries made in the log during each month shall be submitted as part of the monthly self-monitoring report.

VII. RECYCLING MONITORING REQUIREMENTS

A. Monitoring Location REC-001

1. The Discharger shall monitor disinfected tertiary-level treated effluent at REC-001 in accordance with Table E-7 and the testing requirements described in section VII.A.2 below:

Table E-7. Recycled Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Flow	GPD	Meter (see table note a. below)	Continuous	Annually (see table note c. below)
Total Coliform Organisms	MPN/100 mL	Grab (see table note a. below)	1/Day	Annually (see table note c. below)
Turbidity	NTU	Meter (see table note b. below)	Continuous	Annually (see table note c. below)

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. Monitoring to be conducted at Monitoring Location REC-001.
 - b. Monitoring to be conducted at FIL-001.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger is required to participate in the Delta Regional Monitoring Program.¹ Delta Regional Monitoring Program data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Order. Delta Regional Monitoring Program monitoring stations are established generally as “integrator sites” to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring

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

Program monitoring data, along with the individual Discharger data, may be used to help establish background receiving water quality for reasonable potential analyses (RPA's) in an NPDES permit after evaluation of the applicability of the data for that purpose. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water, flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in the exceedance of a water quality objective.

A. Monitoring Location RSW-001, RSW-002, and RSW-003

1. The Discharger shall monitor the San Joaquin River at RSW-001, RSW-002, and RSW-003 in accordance with Table E-8. and the testing requirements described in section A.2 below:

Table E-8. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Monitoring Location(s)
pH	Standard Units	Grab	2/Month	RSW-001, RSW-002
Ammonia	mg/L	Grab	1/Month	RSW-001, RSW-002
Dissolved Oxygen	mg/L	Grab	2/Month	RSW-001, RSW-002
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Month	RSW-001, RSW-002
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter	RSW-001, RSW-002
Dissolved Organic Carbon	mg/L	Grab	1/Quarter	RSW-001, RSW-002
Temperature	°F	Grab	2/Month	RSW-001, RSW-002
Turbidity	NTU	Grab	2/Month	RSW-001, RSW-002
Flow	cfs	Meter	Continuous	RSW-003

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. Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or State Water Board.

- b. For priority pollutant constituents 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 (See Attachment E, section IX.E)
 - c. Samples shall be monitored on the same day as effluent monitoring samples.
 - d. **Ammonia.** Monitoring for ammonia is only required for one year starting **1 April 2022**. A method detection limit of less than or equal to 0.1 mg/L Ammonia, Total (as Nitrogen) shall be used for the analysis.
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. The attention shall be given to the presence of:
- a. Floating or suspended matter;
 - b. Discoloration;
 - c. Bottom deposits;
 - d. Aquatic life;
 - e. Visible films, sheens, or coatings;
 - f. Fungi, slimes, or objectionable growths; and
 - g. Potential nuisance conditions.

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

B. Monitoring Location MW-3, MW-4, MW-5, MW-9W, MW-11, and MW-AW

- 1. The Discharger shall conduct groundwater monitoring at MW-3, MW-4, MW-5, MW-9W, MW-11, and MW-AW and any new groundwater monitoring wells in accordance with Table E-9 and the testing requirements described in section C.2 below:

Table E-9. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Depth to Groundwater	±0.01 feet	Measurement	1/Quarter
Groundwater Elevation	±0.01 feet	Calculated	1/Quarter
Gradient	feet/feet	Calculated	1/Quarter
Gradient Direction	Degrees	Calculated	1/Quarter
Boron, Total Recoverable	mg/L	Grab	1/Quarter

Parameter	Units	Sample Type	Minimum Sampling Frequency
Chloride	mg/L	Grab	1/Quarter
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter
Sodium	mg/L	Grab	1/Quarter
Total Dissolved Solids	mg/L	Grab	1/Quarter
Fixed Dissolved Solids	mg/L	Grab	1/Quarter
pH	standard units	Grab	1/Quarter
Total Coliform Organisms	MPN/100 mL	Grab	1/Quarter
Total Nitrogen	mg/L	Grab	1/Quarter
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter
Ammonia (as NH ₄)	mg/L	Grab	1/Quarter
Iron, Total	mg/L	Grab	1/Quarter
Manganese, Total	mg/L	Grab	1/Quarter

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. **Prior to construction and/or beginning a sampling program** of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of Monitoring Wells MW-3, MW-4, MW-5, MW-9W, MW-11, and MW-AW) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods.
 - b. **Prior to sampling**, the groundwater elevations shall be measured, and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet.
 - c. **Groundwater elevation** shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow, which must be reported.
 - d. **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.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001.
 - a. See section X.D.5, Annual Pretreatment Report, below.
 - 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. Filtration System and Ultraviolet Light (UV) Disinfection System

1. **Monitoring Locations UVS-001 and FIL-001.** When discharging to surface water and/or producing Title 22 disinfected tertiary recycled water for reclamation/reuse, the Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Locations UVS-001 in accordance with Table E-10 and the testing requirements described in section IX.C.2 below:

Table E-10. Filtration System and UV Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	(MGD)	Meter	UVS-001	Continuous
Turbidity	(NTU)	Meter	FIL-001	Continuous
Number of UV banks in operation	Number	Observation	N/A	Continuous
UV Transmittance	Percent (%)	Meter	UVS-001	Continuous
UV Dose	(mJ/cm ²)	Calculated	N/A	Continuous
Total Coliform Organisms	MPN/100mL	Grab	UVS-002	1/Day

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. **Continuous analyzers.** The Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in

which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results.

- c. **Turbidity.** Report daily average and maximum turbidity.
- d. **UV Dose.** Report daily minimum hourly average UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose will be averaged based on the actual operation time.
- e. **Total Coliform Organisms.** Samples for total coliform organisms may be collected at any point following disinfection.

C. Treatment Pond Monitoring

- 1. The Discharger shall monitor wastewater impounded at Monitoring Location PND-001, PND-002, and PND-003 as follows:

Table E-11. PND-001, PND-002, PND-003 Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Week	--
pH	Standard units	Grab	1/Week	--
Freeboard	Feet	Measure	1/Week	--

- 2. **Table E-11 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-11:
 - a. **pH.** Monitoring for pH only required for PND-001 (Secondary Effluent Storage Pond).

D. Pyrethroid Pesticides Monitoring

- 1. **Water Column Chemistry Monitoring Requirements.** The Discharger shall conduct effluent and receiving water (San Joaquin River) baseline monitoring in accordance with Table E-12. **Quarterly monitoring shall be conducted for one year concurrently with the Effluent and Receiving Water Characterization Study**, as specified in section IX.E.1 below. The discharger

shall also submit a minimum of one quality assurance/quality control (QA/QC) sample during the year to be analyzed for the constituents listed in Table E-12.

The monitoring shall be conducted in the effluent at monitoring location EFF-001 and downstream receiving water during the time of sampling at monitoring location RSW-002 and the results of such monitoring be submitted to the Central Valley Water Board with the quarterly self-monitoring reports. The Discharger shall use Environmental Laboratory Accreditation Program (ELAP)-accredited laboratories and methods for pyrethroid pesticides water column chemistry monitoring. ELAP-accredited methods are acceptable for pyrethroid chemical analysis provided that the method meets the analytical capability described in Table E-12. A current list of ELAP approved laboratories and points of contact can be found on the [Central Valley Water Board's website](https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/central_valley_pesticides/pyrethroid_tmdl_bpa/index.html), (https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/central_valley_pesticides/pyrethroid_tmdl_bpa/index.html)

Monitoring can either be conducted by the Discharger or can be done as part of a group monitoring effort. If the Discharger chooses to participate in a group monitoring effort, the timing of the monitoring can be modified by the Executive Officer.

Table E-12. Pyrethroid Pesticides Monitoring

Parameter	CAS Number	Sample Units	Sample Type	Analytical Method	Reporting Level
Total Bifenthrin	82657-04-3	ng/L	Grab	To be determined	1.3
Total Cyfluthrin	68359-37-5	ng/L	Grab	To be determined	1.3
Total Cypermethrin	52315-07-8	ng/L	Grab	To be determined	1.7
Total Esfenvalerate	51630-58-1	ng/L	Grab	To be determined	3.3
Total Lambda-cyhalothrin	91465-08-6	ng/L	Grab	To be determined	1.2
Total Permethrin	52645-53-1	ng/L	Grab	To be determined	10
Freely Dissolved Bifenthrin	82657-04-3	ng/L	Calculated	Calculated from total concentration	
Freely Dissolved Cyfluthrin	68359-37-5	ng/L	Calculated	Calculated from total concentration	
Freely Dissolved Cypermethrin	52315-07-8	ng/L	Calculated	Calculated from total concentration	

Parameter	CAS Number	Sample Units	Sample Type	Analytical Method	Reporting Level
Freely Dissolved Esfenvalerate	51630-58-1	ng/L	Calculated	Calculated from total concentration	
Freely Dissolved Lambda-cyhalothrin	91465-08-6	ng/L	Calculated	Calculated from total concentration	
Freely Dissolved Permethrin	52645-53-1	ng/L	Calculated	Calculated from total concentration	
Dissolved Organic Carbon (DOC)		mg/L	Grab		
Total Organic Carbon (TOC)		mg/L	Grab		

The freely dissolved concentration of each quantified pyrethroid pesticide in a sample may be directly measured or estimated using partition coefficients. Methods for direct measurement must be approved by the Executive Officer before they are used to determine the freely dissolved pyrethroid concentrations that are used for determining exceedances of the pyrethroid pesticides numeric triggers.

To estimate the freely dissolved concentration of a pyrethroid pesticide with partition coefficients, the following equation shall be used:

$$C_{dissolved} = \frac{C_{total}}{1 + (K_{OC} \times [POC]) + (K_{DOC} \times [DOC])}$$

Where:

C dissolved = concentration of a an individual pyrethroid pesticide that is in the freely dissolved phase (ng/L),

C total = total concentration of an individual pyrethroid pesticide in water (ng/L),

KOC = organic carbon-water partition coefficient for the individual pyrethroid pesticide (L/kg),

[POC] = concentration of particulate organic carbon in the water sample (kg/L), which can be calculated as [POC]=[TOC]-[DOC],

[TOC] = total organic carbon in the sample (kg/L)

KDOC = dissolved organic carbon-water partition coefficient (L/kg),

[DOC] = concentration of dissolved organic carbon in the sample (kg/L).

Site-specific or alternative study-based partition coefficients approved by the Executive Officer may be used for KOC and KDOC in the above equation. If

site-specific or alternative study-based partition coefficients are not available or have not been approved, the following partition coefficients shall be used for KOC and KDOC in the above equation:

Table E-13. Pyrethroid Pesticide Partition Coefficients

Pyrethroid Pesticide	Receiving water KOC (L/kg)	Receiving water KDOC (L/kg)	Effluent KOC (L/kg)	Effluent KDOC (L/kg)
Bifenthrin	4,228,000	1,737,127	15,848,932	800,000
Cyfluthrin	3,870,000	2,432,071	3,870,000	2,432,071
Cypermethrin	3,105,000	762,765	6,309,573	200,000
Esfenvalerate	7,220,000	1,733,158	7,220,000	1,733,158
Lambda-cyhalothrin	2,056,000	952,809	7,126,428	200,000
Permethrin	6,074,000	957,703	10,000,000	200,000

- Water Column Toxicity Monitoring Requirements.** When discharging to the San Joaquin River the Discharger shall monitor the toxicity of the downstream receiving water using EPA method EPA-821-R-02-012 (Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, USEPA, October 2002, or most recent edition) Except as specified in this order, water column toxicity testing shall follow the measurement quality objectives provided in the Surface Water Ambient Monitoring Program (SWAMP) Quality Assurance Program Plan (SWRCB, 2018). When feasible, the Discharger shall use the Southern California Coastal Water Research Project (SCCWRP) guidance (Schiff and Greenstein, 2016) on test organism age and size for *Hyalella azteca*.

For consistency with EPA Method EPA-821-R-02-012 and ELAP accreditation, *Hyalella Azteca* water column toxicity testing for baseline monitoring must be performed at 20 degrees Celsius.

Quarterly monitoring shall be conducted for one year concurrently with the Effluent and Receiving Water Characterization Study, as specified in section IX.E.1 below. This is also concurrent with the Pyrethroid Pesticides Water Column Chemistry Monitoring described above. Downstream receiving water monitoring during the time of sampling shall be conducted at monitoring location RSW-002 when discharging to the San Joaquin River and the results of such monitoring be submitted to the Central Valley Water Board with the quarterly self-monitoring reports. Monitoring can either be conducted by the Discharger or can be done as part of a group monitoring effort. If the Discharger chooses to participate in a group monitoring effort, the timing of the monitoring can be modified by the Executive Officer.

E. Effluent and Receiving Water Characterization

1. Monitoring Frequency.
 - a. **Effluent Sampling.** Samples shall be collected from the effluent (Monitoring Location EFF-001) **bi-monthly between 1 April 2022 and 31 March 2023.**
 - b. **Receiving Water Sampling.** Samples shall be collected from the upstream receiving water (Monitoring Location RSW-001 or RSW-002, whichever is upstream at the time of sampling) **bi-monthly between 1 April 2022 and 31 March 2023.**

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

2. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
3. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-14, below.
4. **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.

- The Discharger shall conduct effluent and receiving water characterization monitoring in accordance with Table E-14 and the testing requirements described in section IX.D.6 below.

**Table E-14. 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
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

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
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
5	Chromium, Total	7440-47-3	µg/L	24-hour Composite
6	Copper, Total Recoverable	7440-50-8	µg/L	24-hour Composite
NL	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

CTR Number	Pesticide/PCB/Dioxin Parameters	CAS Number	Units	Effluent Sample Type
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	--	°F	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 CaCO3)	471-34-1	mg/L	Grab
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
NL	Ammonia (as N)	7664-41-7	mg/L	24-hour Composite

CTR Number	Nutrient Parameters	CAS Number	Units	Effluent Sample Type
NL	Nitrate (as N)	14797-55-8	mg/L	24-hour Composite
NL	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
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	24-hour Composite
NL	Diazinon	333-41-5	µg/L	24-hour Composite

6. **Table E-14 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-14.

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

- b. 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/](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-15. Monitoring Periods and Reporting Schedule

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

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.
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 December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.
 - b. **Mass Loading Limitations.** For ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

$$\text{Mass Loading (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34$$

When calculating daily mass loading, the daily average flow and

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

- c. **Removal Efficiency (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.
- d. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in Section VII.D of the Waste Discharge Requirements.
- e. **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 Effluent and Receiving Water Limitations.** To determine compliance with Effluent Limitation IV.A.1.e, the Discharger shall calculate and report the difference in the daily average effluent temperature at Monitoring Locations EFF-001 and the “upstream” receiving water temperature collected at Monitoring Location RSW-001 or RSW-002, consistent with the Compliance Determination Language in Section VII.G of the Limitations and Discharge Requirements. To determine compliance with Receiving Water Limitation V.A.15.b, 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. Due to the tidal nature of the receiving water, the direction of the San Joaquin River flow at the time of sampling will dictate which monitoring location (i.e., Monitoring Location RSW-001 or Monitoring Location RSW-002) is representative of the “upstream” receiving water and which monitoring location is representative of the “downstream” receiving water.

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. The Discharger shall report BMPs that are maintained or implemented at the facility including documentation of conditions prior to implementation, a description of the BMPs, and period of implementation. The Discharger shall maintain and make available to the Central Valley Regional Water Quality Control Board upon request a daily log of visual inspection. The Discharger shall certify within the report that the log has been maintained.
2. **Analytical Methods Report.** The Discharger shall complete and submit an Analytical Methods Report, electronically via CIWQS submittal, by the due date shown in the Technical Reports Table. The Analytical Methods Report shall include the following for each constituent to be monitored in accordance with this Order: 1) applicable water quality objective, 2) reporting level (RL), 3) method detection limit (MDL), and 4) analytical method. The analytical methods shall be sufficiently sensitive with RLs consistent with the SSM Rule per 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv), and with the Minimum Levels (MLs) in the SIP, Appendix 4. The "Reporting Level or RL" is synonymous with the "Method Minimum Level" described in the SSM Rule. If an RL is not less than or equal to the applicable water quality objective for a constituent, the Discharger shall explain how the proposed analytical method complies with the SSM Rule. Central Valley Water Board staff will provide a tool with the permit's Notice of Adoption to assist the Discharger in completing this requirement. The tool will include the constituents and associated applicable water quality objectives to be included in the Analytical Methods Report.
3. **Annual Operations Report.** The Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing the following by the due date in the Technical Reports Table:
 - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
 - e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request

shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

4. **Report of Waste Discharge (ROWD).** For the 5-year permit renewal, the Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing, at minimum, the following by the due date in the Technical Reports Table:
 - a. Report of Waste Discharge (Form 200);
 - b. NPDES Form 1;
 - c. NPDES Form 2A;
 - d. NPDES Form 2S; and
 - e. **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.
5. **Annual Pretreatment Reporting Requirements.** The Discharger shall submit annually a report to the Central Valley Water Board, with copies to U.S. EPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

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

- a. A summary of analytical results from representative sampling of the POTW's influent and effluent for those pollutants U.S. EPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users. 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 (monitoring location BIO-001). 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

6. **Recycled Water Policy Annual Reports.** In accordance with Section 3 of the Water Quality Control Policy for Recycled Water (Recycled Water Policy), the Discharger shall electronically submit an annual report of monthly data to the State Water Board by 30 April annually covering the previous calendar year using the State Water Board's [GeoTracker website](https://geotracker.waterboards.ca.gov/) (<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 annually as a technical report per Table E-15, to demonstrate compliance with this reporting requirement.

7. Land Application Area Reporting.

- a. **Monthly Monitoring Reports.** The results of the required monitoring in this MRP for land discharge monitoring (Section VI) and treatment pond monitoring (Section IX.D).
 - i. Tabulated pond monitoring data.
 - ii. Tabulated daily flow measurements from each wastewater source and supplemental irrigation water to each LAA field.
 - iii. The cumulative annual wastewater (LND-001) flow discharged to the LAAs to date and the average daily flow for the month.
 - iv. Tabulated wastewater monitoring data and calculation of the running average for each group of three consecutive sample results for BOD and total nitrogen.
 - v. Tabulated land application area monitoring data for each LAA field, including; calculation of the hydraulic loading, irrigation cycle average BOD loading, and total nitrogen loading to date from all sources. The average of the three most recent monitoring results shall be used to determine irrigation cycle average BOD and total nitrogen loading. Loading rates from commercial fertilizers shall be calculated separately using actual load analytical results and application areas.
 - vi. A summary of the daily agricultural field inspections for the month, that includes all relevant information identified in Section VI.C. Agricultural Field Inspections.
 - vii. Calculation of the flow-weighted average annual FDS concentration to date (measured at LND-001) using the following formula:

$$C_a = \frac{\sum_{i=1}^{12} [(C_{Pi} \times V_{Pi}) + (C_{Si} \times V_{Si})]}{\sum_{i=1}^{12} (V_{Pi} + V_{Si})}$$

Where:

Ca = Flow-weighted average annual FDS concentration in mg/L

i = the number of the month (e.g., January = 1, February = 2, etc.)

CPi = Monthly average process wastewater FDS concentration for calendar month i in mg/L

C_{Si} = Monthly average supplemental irrigation water FDS concentration for calendar month i in mg/L (considering each supplemental source separately). Supplemental irrigation water is any irrigation supply water other than wastewater produced at the Facility (e.g., groundwater supply).

V_{Pi} = Volume of process wastewater applied to LAAs during calendar month i in million gallons

V_{Si} = Volume of supplemental irrigation water applied to LAAs during calendar month i in million gallons (considering each supplemental source separately). Supplemental irrigation water is any irrigation supply water other than wastewater produced at the Facility (e.g., groundwater supply).

- viii. A comparison of monitoring data to the effluent limitations; mass loading limitations (for each LAA field), and discharge specifications, and an explanation of any violation of those requirements.
- ix. If requested by staff, copies of laboratory analytical report(s).
- x. Copies of current calibration logs for all field test instruments.
- b. **Quarterly Monitoring Reports.** The results of the required monitoring in this MRP for groundwater monitoring (Section VIII.B).
 - i. Results of the quarterly monitoring of the groundwater in tabular format;
 - ii. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
 - iii. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
 - iv. Summary data tables of historical (five years) and current groundwater elevations;

- v. A scaled map showing relevant structures and features of the facility, land application areas, locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
 - vi. Copies of laboratory analytical report(s) for groundwater monitoring.
- c. **Annual Monitoring Reports.** An Annual Report shall be submitted to the Central Valley Water Board by the dates indicated in Technical Reports Table E-16 below each year and shall include the following:
- i. Concentration vs. time graphs for each monitored constituent using all historic groundwater monitoring data. Each graph shall show the background groundwater concentration range, the trigger concentration specified above (where applicable), and the Groundwater Limitation as horizontal lines at the applicable concentration.
 - ii. An evaluation of the groundwater quality beneath the site and determination of Compliance with the Groundwater Limitations based on statistical analysis for each constituent monitored for each compliance well. Include all calculations and data input/analysis tables derived from use of statistical software as applicable.
 - iii. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
 - iv. Copies of laboratory analytical report(s) for groundwater monitoring.
 - v. Copies of laboratory analytical report(s) for groundwater monitoring.
- d. **Nutrient Management Plan.** An Annual Report shall be prepared and shall include all monitoring data required in the monitoring schedule applicable land applications, including pond and groundwater monitoring. The Annual Report shall be submitted to the Central Valley Water Board by the dates indicated in Technical Reports Table E-16 below. In addition to the data normally presented, the Annual Report shall include the following:
- i. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), BOD, total nitrogen, fixed dissolved solids, and total dissolved solids.
 - ii. The flow-weighted annual average FDS concentration shall be calculated using the following formula:

$$C_a = \frac{\sum_{1}^{12} (C_{Pi} \times V_{Pi})}{\sum_{1}^{12} V_{Pi}}$$

Where:

Ca = Flow-weighted average annual FDS concentration in mg/L

i = the number of the month (e.g., January = 1, February = 2, etc.)

CPi = Monthly average process wastewater FDS concentration for calendar month i in mg/L

VPi = Volume of process wastewater applied to LAAs during calendar month i in million gallons

- iii. A mass balance relative to constituents of concern and hydraulic loading along with supporting data and calculations. The report shall describe the types of crops planted and dates of planting and harvest for each crop.
- iv. For each violation of the Discharge Specifications, applicable Prohibitions, and Groundwater Limitations of this Order, the report shall describe in detail the nature of the violation, date(s) of occurrence, cause(s), mitigation or control measures taken to prevent or stop the violation, and additional operational or facility modifications that will be made to ensure that the violation does not occur in the following year.
- v. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control, including consideration of application management practices (i.e. waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data.
- vi. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the land application discharge, or groundwater limits, into full compliance with the requirements in this Order.
- vii. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
- viii. Based on this information, the Discharger shall develop and include a Cropping and Irrigation plan for the following season.

- ix. A current site plan depicting the irrigation checks within each LAA field that was used during the calendar year, including all water conveyance ditches and internal berms that divide each LAA (where applicable).
 - x. Tabulated cropping information for each LAA field that includes at least:
 - (a) The crop that was grown in each field;
 - (b) Planting dates;
 - (c) Harvesting dates;
 - (d) Crop total nitrogen demand; and
 - (e) Crop average evapotranspiration rate in inches.
8. **Technical Report Submittals.** This Order includes requirements to submit a ROWD, special study technical reports, progress reports, and other reports identified in the MRP (hereafter referred to collectively as “technical reports”). The Technical Reports Table 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-16. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Intentionally left blank	Standard Reporting Requirements	Intentionally left blank	Intentionally left blank
1	Report of Waste Discharge	31 March 2025	MRP X.D.4
2	Analytical Methods Report	1 June 2021	MRP X.D.2
3	Analytical Methods Report Certification	1 January 2022	MRP IX.D.2
4	Annual Operations Report	1 February 2022	MRP X.D.3
5	Annual Operations Report	1 February 2023	MRP X.D.3
6	Annual Operations Report	1 February 2024	MRP X.D.3
7	Annual Operations Report	1 February 2025	MRP X.D.3
8	Annual Operations Report	1 February 2026	MRP X.D.3
9	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2021	MRP X.D.6
10	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2022	MRP X.D.6
11	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2023	MRP X.D.6
12	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2024	MRP X.D.6

Report #	Technical Report	Due Date	CIWQS Report Name
13	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2025	MRP X.D.6
Intentionally left blank	Compliance Schedule for Final Effluent Limitations for Methylmercury WDR Section VI.C.7.X (see table note 1. below)	Intentionally left blank	Intentionally left blank
14	Mercury Pollution Prevention Plan Annual Progress Reports	1 February 2022	WDR VI.C.7.a
15	Mercury Pollution Prevention Plan Annual Progress Reports	1 February 2023	WDR VI.C.7.a
16	Mercury Pollution Prevention Plan Annual Progress Reports	1 February 2024	WDR VI.C.7.a
17	Mercury Pollution Prevention Plan Annual Progress Reports	1 February 2025	WDR VI.C.7.a
18	Mercury Pollution Prevention Plan Annual Progress Reports	1 February 2026	WDR VI.C.7.a
19	Notification of Full Compliance Signed by Legally Responsible Official (LRO)	31 December 2030	WDR VI.C.7.a
Intentionally left blank	Land Application Area Reporting	Intentionally left blank	Intentionally left blank
20	Land Application Area Annual Monitoring Reports	1 February 2022	MRP X.D.7
21	Land Application Area Annual Monitoring Reports	1 February 2023	MRP X.D.7
22	Land Application Area Annual Monitoring Reports	1 February 2024	MRP X.D.7
23	Land Application Area Annual Monitoring Reports	1 February 2025	MRP X.D.7
24	Land Application Area Annual Monitoring Reports	1 February 2026	MRP X.D.7
25	Nutrient Management Plan	1 March 2022	MRP X.D.7
26	Nutrient Management Plan	1 March 2023	MRP X.D.7
27	Nutrient Management Plan	1 March 2024	MRP X.D.7
28	Nutrient Management Plan	1 March 2025	MRP X.D.7
29	Nutrient Management Plan	1 March 2026	MRP X.D.7
Intentionally left blank	Other Reports	Intentionally left blank	Intentionally left blank
30	Annual Pretreatment Report	28 February 2022	MRP X.D.5
31	Annual Pretreatment Report	28 February 2023	MRP X.D.5
32	Annual Pretreatment Report	28 February 2024	MRP X.D.5
33	Annual Pretreatment Report	28 February 2025	MRP X.D.5
34	Annual Pretreatment Report	28 February 2026	MRP X.D.5

Table E-16 Note:

1. Beginning 1 February 2022 and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on the previously submitted pollution prevention plan for mercury. **This annual report may be combined with the Annual Operations Report and submitted as one report.** The progress reports shall discuss the effectiveness of the pollution prevention plan in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the pollution prevention plan.

ATTACHMENT F – FACT SHEET

Table of Contents

I. Permit Information 3

II. Facility Description 5

 A. Description of Wastewater and Biosolids Treatment and Controls 5

 B. Discharge Points and Receiving Waters 6

 C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data 6

 D. Compliance Summary 10

 E. Planned Changes 10

III. Applicable Plans, Policies, and Regulations 11

 A. Legal Authorities 12

 B. California Environmental Quality Act (CEQA) 12

 C. State and Federal Laws, Regulations, Policies, and Plans 12

 D. Impaired Water Bodies on CWA 303(d) List 17

 E. Other Plans, Policies and Regulations 18

IV. Rationale For Effluent Limitations and Discharge Specifications 20

 A. Discharge Prohibitions 21

 B. Technology-Based Effluent Limitations 22

 1. Scope and Authority 22

 2. Applicable Technology-Based Effluent Limitations 22

 C. Water Quality-Based Effluent Limitations (WQBEL's) 23

 1. Scope and Authority 23

 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives 24

 3. Determining the Need for WQBEL's 34

 4. WQBEL Calculations 59

 5. Whole Effluent Toxicity (WET) 63

 D. Final Effluent Limitation Considerations 65

 1. Mass-based Effluent Limitations 65

 2. Satisfaction of Anti-Backsliding Requirements 66

 3. Antidegradation Policies 67

 4. Stringency of Requirements for Individual Pollutants 70

 E. Interim Effluent Limitations 73

 F. Land Discharge Specifications 75

 G. Recycling Specifications 77

V. Rationale for Receiving Water Limitations 77

 A. Surface Water 77

 B. Groundwater 79

VI. Rationale for Provisions 83

 A. Standard Provisions 83

 B. Special Provisions 83

 1. Reopener Provisions 83

 3. Best Management Practices and Pollution Prevention 88

 4. Construction, Operation, and Maintenance Specifications 88

 5. Special Provisions for Publicly-Owned Treatment Works (POTWs) 89

 6. Compliance Schedules 91

VII. Rationale for Monitoring and Reporting Requirements 94

 A. Influent Monitoring 94

 B. Effluent Monitoring 94

 C. Whole Effluent Toxicity Testing Requirements 96

 D. Receiving Water Monitoring 96

 1. Surface Water 96

 2. Groundwater 98

 E. Other Monitoring Requirements 99

VIII. Public Participation 100

 A. Notification of Interested Persons 100

 B. Written Comments 100

 C. Public Hearing 100

 D. Reconsideration of Waste Discharge Requirements 101

 E. Information and Copying 101

 F. Register of Interested Persons 101

 G. Additional Information 101

Tables

Table F-1. Facility Information 3

Table F-2. Historic Effluent Limitations 8

Table F-3 Basin Plan Beneficial Uses 12

Table F-4. 303 (d) List for Southern Delta 18

Table F-5. Summary of Technology-based Effluent Limitations 23

Table F-6. Summary of CTR Criteria for Hardness-dependent Metals 27

Table F-7. Verification of CTR Compliance for Copper 33

Table F-8. Verification of CTR Compliance for Silver 34

Table F-9. Salinity Water Quality Criteria/Objectives 43

Table F-10. Summary of Water Quality-Based Effluent Limitations 61

Table F-11. Whole Effluent Chronic Toxicity Testing Results 65

Table F-12. Summary of Final Effluent Limitations 71

Table F-13. Calendar Annual Average TDS concentrations applied to LAAs 77

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:	5B390104001
CIWQS Facility Place ID:	239343
Discharger:	City of Manteca
Name of Facility:	Wastewater Quality Control Facility
Facility Address:	2450 West Yosemite Avenue
Facility City, State Zip:	Manteca, CA 95337
Facility County:	San Joaquin County
Facility Contact, Title and Phone Number:	Heather Grove, Wastewater Systems Superintendent, (209) 456-8473
Authorized Person to Sign and Submit Reports:	Heather Grove, Wastewater Systems Superintendent, (209) 456-8473
Mailing Address:	1001 West Center Street, Manteca, CA 95337
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:	Order WQ 2016-0068-DDW
Facility Permitted Flow:	Current Facility – 9.87 MGD, average dry weather flow

	Upgraded Facility – 17.5 MGD, average dry weather flow
Facility Design Flow:	Current Facility – 9.87 MGD, average dry weather flow Upgraded Facility – 17.5 MGD, average dry weather flow
Watershed:	Sacramento-San Joaquin Delta
Receiving Water:	San Joaquin Delta
Receiving Water Type:	Estuary

- A. The City of Manteca (hereinafter Discharger) is the owner and operator of the Wastewater 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 of the United States within the Sacramento-San Joaquin Delta. The Discharger was previously regulated by Order R5-2015-0026 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081558 adopted on 17 April 2015, with an expiration date of 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 2 December 2019. The application was deemed complete on 14 January 2020. A site visit was conducted on 5 February 2020 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.
- E. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Under 40 C.F.R. section 122.6(d), States authorized to administer the NPDES program may administratively continue State-issued permits beyond their expiration dates until the effective date of the new permits, if State law allows it. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically

continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The City provides sewerage service for commercial and residential uses within the City of Manteca and portions of the City of Lathrop and serves a population of approximately 97,000. The City has an approved EPA pretreatment program that has two non-categorical significant industrial user (SIU) and one categorical SIU's. The municipal wastewater collection system consists of two main lines servicing the City of Manteca that includes 243 miles of sewer mains with 18 pump stations, and another line servicing the City of Lathrop that is connected by 27 miles of sewer mains. The collection systems are regulated under State Water Resources Control Board (State Water Board) Order 2006-0003. A separate industrial line accepts food processing wastewater seasonally from Eckert Cold Storage from about May through November. Eckert Cold Storage processes frozen vegetables (e.g., cabbage and a variety of peppers), and discharges primarily wastewater from the cutting and washing of these vegetables. At times, the food processing wastewater is mixed with wastewaters from clean-up of the processing equipment, freezer defrost waters, and cooling towers. The food processing wastewater is stored and aerated in a lined pond, and then applied to agricultural fields when needed. Use of land disposal onto agricultural fields is being phased out as the City is using more of its land for commercial development.

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility has a design average dry weather flow capacity of 9.87 MGD and its treatment process is divided into two parallel treatment systems, the north and south treatment systems. Primary treatment is identical in both systems and consists of mechanical screening, aerated grit removal, and primary sedimentation. At the north plant, the primary effluent may undergo additional treatment through two biotowers with high-rate plastic media (currently out of service). The secondary treatment processes for both treatment systems are the same, consisting of conventional activated sludge, including nitrification-denitrification, followed by secondary sedimentation. Grit and screenings are hauled offsite to a landfill for disposal.

Undisinfected secondary effluent is either stored for agricultural use in a 15-million-gallon pond or blended with treated food processing wastewater and applied directly to agricultural fields. The agricultural fields are used to grow crops for dairy feed. The land application area consists of 10 fields located on land owned by the City (Fields 2 through 11 – Field 7 is out of service and Field 10 was sold in mid-2018). The City-owned agricultural fields total approximately 167 acres surrounding the Facility.

Tailwater from the irrigation fields percolates into the soil or is recirculated into the irrigation system. Tailwater from Fields 2, 4, and a small portion of 5, is collected in a sump and pumped back to the irrigation supply system. Most of Field 5 is currently used as a storm water drainage basin. Tailwater from Field 3 drains to a sump and pumped into the pond for irrigation. Tailwater from Fields 6 and 9E percolates into

the soil. Tailwater from Field 9W drains to adjacent unused land that does not contain an outlet.

Secondary effluent in excess of crop demands undergoes tertiary treatment through rapid mixing, flocculation, cloth media filtration, and ultraviolet (UV) disinfection. The disinfected tertiary recycled water is pumped from the Facility to its Truck Fill Station, located at the entrance of the Facility. The Truck Fill Station provides access for construction vehicles and vactor trucks to receive recycled water for construction and sewer cleaning purposes. The City also has one recycled water user, the Great Wolf Lodge where water is sent for landscape irrigation. Remaining disinfected tertiary level treated effluent is discharged year-round to the San Joaquin River through a 36-inch diameter pipe.

Sludge removed from primary sedimentation is pumped directly to anaerobic digesters while sludge from secondary sedimentation is thickened by dissolved air flotation and then pumped to anaerobic digesters. After digestion, the treated sludge is dewatered by centrifuge. Dried biosolids, grit, and screenings are hauled offsite to a privately-owned landfill for disposal.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 4, T2S, R6E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to the San Joaquin River, a water of the United States within the Sacramento-San Joaquin Delta at a point latitude 37° 46' 45" N and longitude 121° 18' 0" W.

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

Effluent limitations contained in Order R5-2015-0026 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2015-0026 are as follows with Table F-2 and notes 1-23:

1. Applied as an average dry weather flow effluent limitation.
2. Based on an average dry weather flow of 9.87 million gallons per day (MGD). Effective immediately and until Executive Officer's written approval of flow increase (Special Provisions VI.C.6.b).
3. Represents the maximum observed daily discharge.
4. Based on an average dry weather flow of 17.5 MGD. Effective upon Executive Officer's written approval of flow increase (Special Provisions VI.C.6.b).
5. Represents the minimum reported percent removal.
6. Interim annual mass loading effluent limitation, effective until 31 December 2030.

7. Represents the maximum total calendar annual mass load.
8. Effluent limitations applicable from 1 April through 30 November.
9. Effluent limitations applicable from 1 December through 31 March.
10. 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 $\mu\text{g/L}$
11. Average Weekly Effluent Limitation (AWEL)
$$S(\text{AWEL}) = C_d (\text{W-avg})/0.079 + C_c (\text{W-avg})/0.012 \leq 1.0$$

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 $\mu\text{g/L}$
12. Applied as an annual average effluent limitation.
13. Represents the maximum observed annual average concentration.
14. Final annual mass loading effluent limitation effective 31 December 2030.
15. The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
16. Reflects the maximum difference between the effluent temperature measured at Monitoring Location EFF-001 and the temperature of the receiving water measured at Monitoring Location RSW-001.
17. Applied as a 7-day median effluent limitation.
18. Not to be exceeded more than once in any 30-day period.
19. Applied as an instantaneous maximum effluent limitation.
20. Minimum percent survival for any one bioassay.
21. Median percent survival of three consecutive acute bioassays.
22. Represents the minimum observed percent survival.

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

Table F-2. Historic Effluent Limitations

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	MDEL 9.87 (see table notes 1. and 2. above)	--	--	7.9 (see table note 3. above)
Flow	MGD	MDEL 17.5 (see table notes 1. and 4. above)	--	--	7.9 (see table note 3. above)
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15 MDEL 20	4.1	14	--
Biochemical Oxygen Demand (5-day @ 20°C)	lbs/day	AMEL 820 AWEL 1,200 MDEL 1,500 (see table note 2. above)	479	744	--
Biochemical Oxygen Demand (5-day @ 20°C)	lbs/day	AMEL 1,500 AWEL 2,200 MDEL 3,000 (see table note 4. above)	479	744	--
Biochemical Oxygen Demand (5-day @ 20°C)	% removal	AMEL 85	99 (see table 5. above)	--	--
pH	Standard units	Instantaneous Max 8.5 Instantaneous Min 6.5	--	--	6.4 – 7.8
Total Suspended Solids	mg/L	AMEL 10 AWEL 15 MDEL 20	2.9	4.7	--
Total Suspended Solids	lbs/day	AMEL 820 AWEL 1,200 MDEL 1,700 (see table note 2. above)	154	253	--
Total Suspended Solids	lbs/day	AMEL 1,500 AWEL 2,200 MDEL 3,000 (see table note 4. above)	154	253	--

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Total Suspended Solids	% removal	AMEL 85	99 (see table 5. above)	--	--
Mercury, Total Recoverable	grams/year	AMEL 90 (see table note 6. above)	6.0 (see table note 7. above)	--	--
Ammonia Nitrogen, Total (as N)	mg/L	AMEL 2.1 AWEL 4.4	2.0	4.3	--
Ammonia Nitrogen, Total (as N)	lbs/day	AMEL 170 AWEL 360 (see table notes 2. and 8. above)	79.5	135	--
Ammonia Nitrogen, Total (as N)	lbs/day	AMEL 310 AWEL 640 (see table notes 4. and 8. above)	79.5	135	--
Ammonia Nitrogen, Total (as N)	mg/L	AMEL 2.6 AWEL 4.7	2.7	3.7	--
Ammonia Nitrogen, Total (as N)	lbs/day	AMEL 210 AWEL 390 (see table notes 2. and 9. above)	144	203	--
Ammonia Nitrogen, Total (as N)	lbs/day	AMEL 380 AWEL 690 (see table notes 4. and 9. above)	144	203	--
Chlorpyrifos	µg/L	(see table notes 10. and 11. above)	ND	--	ND
Diazinon	µg/L	(see table notes 10. and 11. above)	ND	--	ND
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,000 (see table note 12. above)	764 (see table note 13. above)	--	--
Methylmercury	grams/year	AMEL 0.38 (see table note 14. above)	--	--	--
Nitrate Plus Nitrite, Total (as N)	mg/L	AMEL 10 AWEL 15.3	8.1	10	--

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Temperature	°F	(see table note 15. above)	--	--	22 (see table note 16. above)
Total Coliform Organisms	MPN/100 mL	AMEL 2.2 (see table note 17. above) AWEL 23 (see table note 18. above) MDEL 240 (see table note 19. above)	4.4	34	1,600
Acute Toxicity	% Survival	MDEL 70/90 (see table notes 20. and 21. above)	--	--	90 (see table note 22. above)
Chronic Toxicity	TUc	(see table note 23. above)	--	--	1

D. Compliance Summary

1. The Central Valley Water Board issued Administrative and Civil Liability (ACL) Complaint R5-2018-0524 on 03 October 2018, which proposed to assess a civil liability of \$6,000 against the Discharger for effluent violations for total ammonia (1 violation), pH (1 violation), temperature (5 violations), and total coliform (4 violations) under Order R5-2015-0026. The Discharger paid the mandatory minimum penalty of \$6,000.
2. The Central Valley Water Board issued ACL Complaint R5-2019-0512 on 11 September 2017, which proposed to assess a civil liability of \$66,000 against the Discharger for effluent violations for pH (1 violation), temperature (3 violations), and total coliform (21 violations) under Order R5-2015-0026. The Discharger paid the mandatory minimum penalty of \$66,000.

E. Planned Changes

1. **Facility Upgrades.** The City is not currently planning to expand the Facility from 9.87 MGD to 17.5 MGD during the term of this Order. The Facility currently nitrifies and denitrifies tertiary-level treated effluent. The City prepared and submitted for public review a Draft Environmental Impact Report (DEIR) in compliance with the California Environmental Quality Act (CEQA) that addressed the expansion project. The increased discharge will be primarily for effluent discharges to the San Joaquin River because the City determined that it's impracticable to acquire additional agricultural fields; however, the City is

seeking to expand its Title 22 recycled water program (e.g., baseball field, parks). Consistent with Order R5-2015-0026, this Order conditionally authorizes the increase of the permitted average dry weather flow from 9.87 MGD to 17.5 MGD upon the demonstration of compliance with Effluent Limitations IV.A.1, Receiving Water Limitations V.A, and Special Provisions VI.C.6.b.

As part of the DEIR, the City performed extensive hydrodynamic and thermal modeling to determine the effects of the increased discharge flow to the San Joaquin River and to the Sacramento-San Joaquin Delta downstream of the discharge. The modeling of the thermal plume led to the conclusion that the increased discharge would potentially exceed all provisions of the Thermal Plan; therefore, the City intends to design, install, and operate effluent cooling facilities that will cool treated effluent prior to discharging into the San Joaquin River. The cooling facilities will be designed to reduce temperature of the treated effluent such that the effluent discharge and associated size of the thermal plume will comply with Thermal Plan provisions as necessary to protect sensitive aquatic life.

2. **Regionalization, Reclamation, and Recycling.** The Facility is currently a regional treatment facility. In 1986 the Facility began treating a portion of the City of Lathrop's municipal sewage, who is entitled to 14.7% of the Facility's treatment capacity including the planned facility expansion. Furthermore, in the 1970's, the Facility began treating municipal sewage from Raymus Village, a San Joaquin County community. Additionally, the Discharger continues ongoing negotiations with the Oakwood Shores residential development and the City of Ripon regarding acceptance and treatment of their municipal sewage; however, discussions are preliminary and there is not a final proposal at this time.

The Discharger currently reclaims wastewater by irrigating a total of 167 acres of agricultural fields that grow primarily corn and alfalfa used for fodder. Based upon the City's investigation for additional recycled water use, additional agricultural field acreage is not available within the vicinity of the Facility for additional wastewater reclamation opportunities. However, the City evaluated urban water recycling opportunities within the City of Manteca in their 2007 City of Manteca Recycled Water Master Plan (Recycled Water Master Plan). The Recycled Water Master Plan identified 134 sites comprising 817 acres within the City of Manteca as candidates for receiving recycled water that could potentially use 3,700 acre-feet per year of recycled water. The Recycled Water Master Plan also proposes expansion of its recycled water program that includes construction of a backbone delivery network to deliver recycled water to the municipal golf course, the regional softball complex, major commercial centers along State Route 120, and to the largest community parks in South Manteca.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

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

B. California Environmental Quality Act (CEQA)

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

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

1. **Water Quality Control Plan.** Requirements of this Order specifically implement the applicable Water Quality Control Plans.
 - a. **Basin Plan.** The Central Valley Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Beneficial uses applicable to the San Joaquin River within the Sacramento-San Joaquin Delta are as follows:

Table F-3 Basin Plan Beneficial Uses

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

Discharge Point	Receiving Water Name	Beneficial Use(s)
--	Groundwater	Existing: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PROC).

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

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

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

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

Pursuant to 40 C.F.R. section 131.21(a), the Regional Administrator shall either notify the State within 60 days that the revisions are approved, or notify the State within 90 days that the revisions are disapproved. In addition, 40 C.F.R. section 131.21(e) states that a State or authorized Tribe’s applicable water quality standard for purposes of the Clean Water Act remains the applicable standard until U.S. EPA approves a change, deletion, or addition to that water quality standard, or until U.S. EPA promulgates a more stringent water quality standard. As a result, the applicable water quality standard for electrical conductivity pursuant to the Clean Water Act remains 700 µmhos/cm from April

to August and 1000 μ mhos/cm from September to March as noted in Table 2, Water Quality Objectives for Agricultural Beneficial Uses, in the Bay-Delta Plan.

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

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

“5. Estuaries

A. Existing dischargers

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

- a. *The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.*
- b. *Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.*
- c. *No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.*
- d. *Additional limitations shall be imposed when necessary to assure protection of beneficial uses.”*

- d. **Sediment Quality.** The State Water Board adopted the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality on 16 September 2008, and it became effective on 25 August 2009. This plan supersedes other narrative sediment quality objectives and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. Requirements of this Order implement sediment quality objectives of this Plan.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.
3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, 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 Board Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, does not require facilities to obtain coverage if storm water is captured and treated and/or disposed of with the Facility's NPDES permitted process wastewater or if storm water is disposed to evaporation ponds, percolation ponds, or combined sewer systems. The Discharger captures and treats all storm water that falls on-site. Therefore, coverage under the General Storm Water Permit is not required.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 U.S. EPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "*...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.).*" The Basin Plan also states, "*Additional*

treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.”

The listing for the southern portion of the Sacramento-San Joaquin Delta, which includes the San Joaquin River, includes chlorpyrifos, diazinon, dichlorodiphenyltrichloroethane (DDT), electrical conductivity, group A pesticides, invasive species, mercury, and unknown toxicity.

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

Table F-4. 303 (d) List for Southern Delta

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

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

E. Other Plans, Policies and Regulations

1. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27).** Discharges of wastewater to land, including but not limited to evaporation ponds or percolation ponds, are exempt from the requirements of Title 27, CCR, based on section 20090 et seq. The Facility contains storage facilities and agricultural reuse fields where a determination has been made by the Central Valley Water Board whether the facilities meet the exemptions from Title 27. These facilities include the Secondary Effluent Equalization Pond

(SEEP), Secondary Effluent Storage Pond (SESP), Food Receiving and Processing Wastewater Pond, and the Land Application Areas. The Central Valley Water Board's findings regarding Title 27 exemptions are discussed below.

- a. **Secondary Effluent Equalization Pond (SEEP).** The SEEP is exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a). Provision H.4 of Order No. R5 2004-0028 required the Discharger to construct additional storage facilities to demonstrate adequate storage capacity of treated domestic sewage so the discharge to the San Joaquin River could be ceased during periods of incoming tides. The SEEP was constructed to comply with Provision H.4, and therefore, is a necessary part of the Facility's wastewater treatment system. Secondary effluent may be stored in the SEEP prior to tertiary-level treatment and discharge to the San Joaquin River. The SEEP is fully tetra-lined.
- b. **Food Receiving and Processing Wastewater Pond.** The Facility accepts food-processing wastewater from Eckert Cold Storage through a separate influent collection line. The wastewater does not go to the headworks of the Facility. Eckert Cold Storage is a seasonal discharger that processes frozen vegetables, cabbage, and a variety of peppers. Eckert Cold Storage treats the food-processing wastewater by screening, dissolved air flotation system, and pH neutralization before discharging to the Facility. The Facility stores and aerates the treated food processing wastewater in the Food Receiving and Processing Wastewater Pond, which is a tetra-lined pond (sides walls and bottom are lined). The Discharger also provides chemical addition in the pond for odor control and additional treatment.

The wastewater does not need to be managed as hazardous waste, and because the pond is lined, the relatively minimal discharge to groundwater would have little effect to cause to exceed applicable water quality objectives. Thus, the discharge to the pond is in compliance with the applicable water quality control plan. Based on these findings the Food Receiving and Processing Wastewater Pond is exempt from the requirements of Title 27 CCR, pursuant to Title 27 CCR section 20090(b).

- c. **Secondary Effluent Storage Pond (SESP).** The SESP holds only secondary effluent that has been treated at the Facility. The SESP has rip/rap sidings and an unlined bottom. Groundwater monitoring data has not been obtained to determine whether any attenuation beneath SESP has occurred. But based on the monitoring results of the representative samples, the wastewater in the SESP does not need to be managed as hazardous waste.

- d. **Land Application Area.** During the agricultural season (about late April through early October), the Discharger either directly irrigates agricultural fields with the treated food processing wastewater, or blends this treated food processing wastewater with secondary treated municipal effluent before reusing the wastewater on land. Use of reclaimed wastewater for irrigation purposes on agricultural fields, serves to conserve valuable surface water drinking water supplies. The reuse of treated wastewater on agricultural fields is exempt from Title 27 pursuant to Section 20090(h).

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). 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. R5-2015-0026 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133.

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

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTW's [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the U.S. EPA Administrator.

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 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**

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

Parameter	Units	Effluent Limitations
Biochemical Oxygen Demand (BOD ₅) (5-day @ 20°C)	mg/L	AMEL 30 AWEL 45
BOD ₅	% Removal	AMEL 85
Total Suspended Solids (TSS)	mg/L	AMEL 30 AWEL45
TSS	% Removal	AMEL 85
pH	standard units	Instantaneous Max 6.0 Instantaneous Min 9.0

Table F-5 Notes:

- 1. Note that more stringent WQBEL's for 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 technology equivalence requirements, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in section IV.C.3 of this Fact Sheet.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBEL's must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 C.F.R. section 122.44(d)(1)(vi).

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

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

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal regulations, developed to implement the

requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal regulations, 40 C.F.R. sections 131.2 and 131.10, require that all waters of the state be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal regulation, 40 C.F.R. section 131.10, requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected, and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

- a. **Receiving Water and Beneficial Uses.** 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 September 2016 through August 2019, which includes effluent and ambient background data submitted in SMRs. The January 2017 sample was found non representative for metals such as copper and lead due to the occurrence of significant storm events with 2.81 inches of rain between 7 January 2017 and 11 January 2017 which resulted in twice the amount of average flow and turbidity.
- c. **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.
- d. **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 26 mg/L to 249 mg/L based on collected ambient data from July 2010 through August 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 Board has discretion to select ambient hardness values within the range of 26 mg/L (minimum) up to 249 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-7 for the following reasons.

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)

- i. Using the ambient receiving water hardness values shown in Table F-6 will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
- ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-6 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 34 mg/L will result in limits that may allow increased metals to be discharged to the river, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in section IV.D.4 of the Fact Sheet). The Antidegradation policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
- iv. Using the ambient hardness values shown in Table F-6 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-6. Summary of CTR Criteria for Hardness-dependent Metals

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable) (Acute)	CTR Criteria (µg/L, total recoverable) (Chronic)
Copper	90	13	8.5
Chromium III	90	1600	190
Cadmium	84 (acute) 90 (chronic)	3.7	2.3
Lead	76	58	2.2
Nickel	90	430	48

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable) (Acute)	CTR Criteria (µg/L, total recoverable) (Chronic)
Copper	90	13	8.5
Chromium III	90	1600	190
Cadmium	84 (acute) 90 (chronic)	3.7	2.3
Silver	68	2.1	--
Zinc	90	110	110

Table F-6 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-6 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

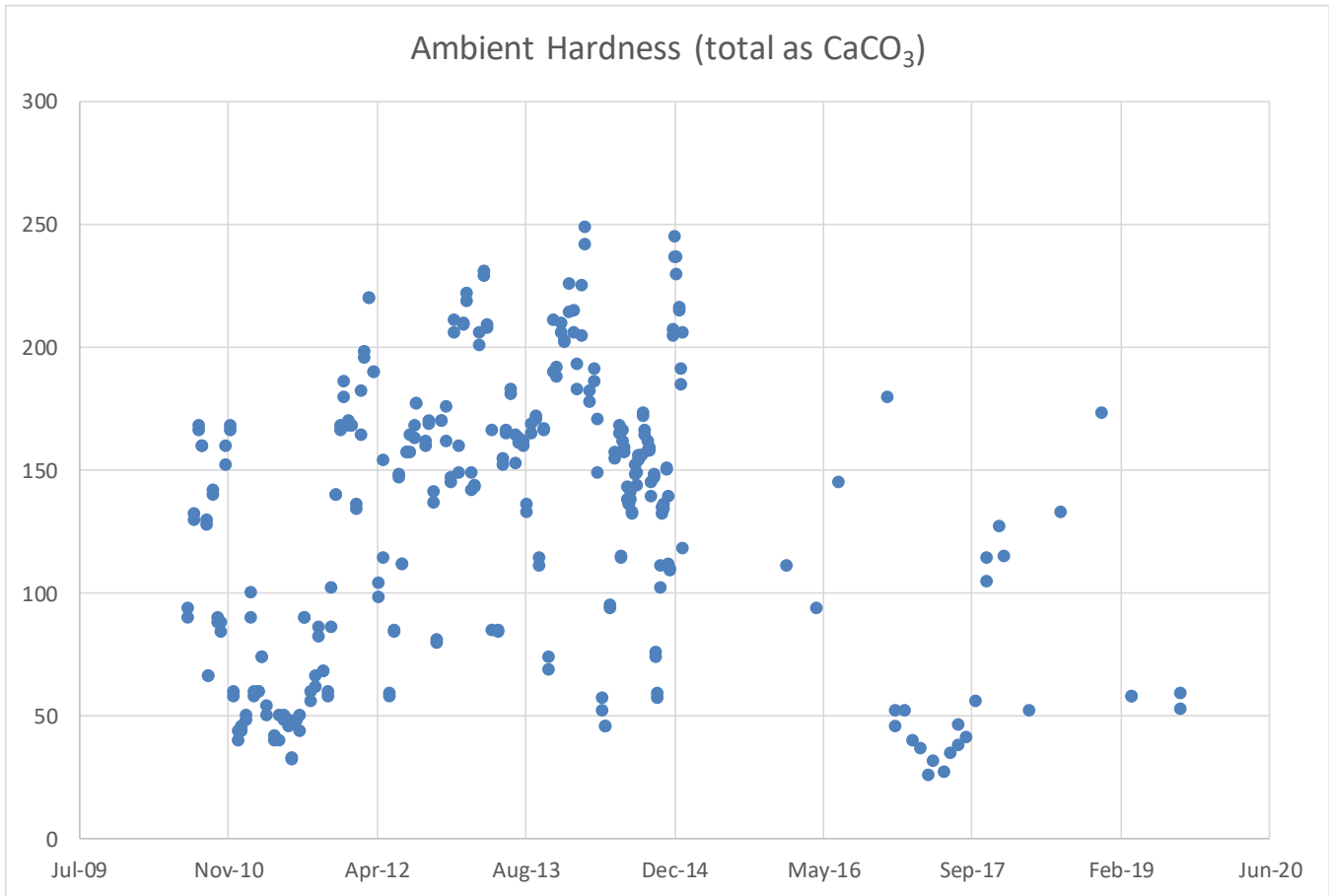
The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected “design” hardness must result in effluent 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 550 cfs and 600 cfs, respectively.

Ambient conditions

The ambient receiving water hardness varied from 26 mg/L to 249 mg/L, based on 292 samples from July 2010 through August 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 Ambient Hardness Concentrations 26 mg/L - 292 mg/L (as CaCO₃)



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

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

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

Reasonable worst-case ambient conditions:

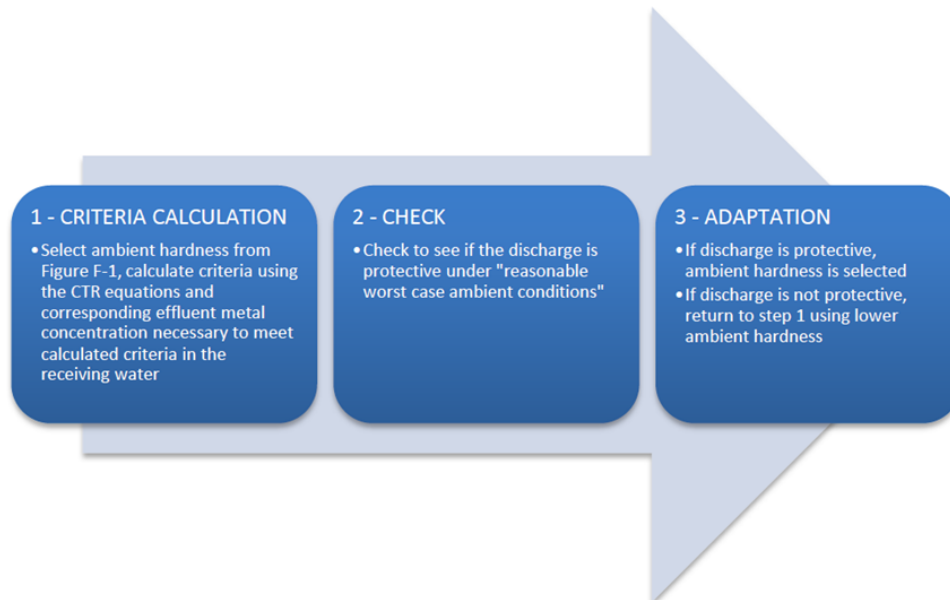
- “Low receiving water flow.” CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions.
- “High receiving water flow (maximum receiving water flow).” This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- “Low receiving water hardness.” The minimum receiving water hardness condition of 26 mg/L was selected to represent the reasonable worst-case receiving water hardness.
- “Background ambient metal concentration at criteria.” This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the facility’s discharge). Based on data in the record, this is a design condition that does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

Iterative approach.

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

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

Figure F-2. Criteria Calculation CTR



- *
1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 249 mg/L. 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-6, above. Using these actual receiving water sample hardness values to calculate criteria will result in effluent limitations that are protective under all ambient flow conditions. Ambient hardness values are used in the CTR equations to derive criteria and effluent limitations. As an example of the three-step iterative process, Table F-7 below summarizes the numeric results for copper based on an ambient hardness of 90 mg/L and a calculated ECA of 8.5 µg/L. Table F-8 below summarizes the numeric results for silver based on an ambient hardness of 68 mg/L and a calculated ECA of 2.1 µg/L. The analysis evaluated all flow conditions, and the numeric values for the critical flow conditions are summarized in Tables F-7 and F-, 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-7 and F-8 below, summarize the critical flow conditions.

Table F-7. 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	28	3.1	3.1	Yes
7Q10	28	3.1	3.1	Yes
Max receiving water flow	26	3.0	3.0	Yes

Table F-8. Verification of CTR Compliance for Silver
 Downstream Worst-Case Ambient Receiving Water Conditions

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Silver Concentration (µg/L)	Complies with CTR?
1Q10	28	0.4	0.4	Yes
7Q10	28	0.4	0.4	Yes
Max receiving water flow	26	0.4	0.4	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).**
 40 C.F.R. section 122.44(d)(1)(vii) provides: “When developing water quality-based effluent limits under [section 122.44(d)(1)], the permitting authority shall ensure that: (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards; and (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to [Total Maximum

Daily Loads regulations].” U.S. EPA construes 40 C.F.R. section 122.44(d)(1)(vii)(B) to mean that “when WLAs are available, they must be used to translate water quality standards into NPDES permit limits.” 54 Fed. Reg. 23868, 23879 (June 2, 1989).

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

i. **Diazinon and Chlorpyrifos**

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

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

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

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

Where:

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

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

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

WQOc = acute or chronic chlorpyrifos water quality objective in µg/L.

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

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

- (b) **RPA Results.** Diazinon was not detected in the effluent based on twelve samples collected between September 2016 and August 2019. Diazinon was not detected in the upstream receiving water based on twelve samples collected between September 2016 and August 2019.

Chlorpyrifos was not detected in the effluent based on twelve samples collected between September 2016 and August 2019. Chlorpyrifos was not detected in the upstream receiving water based on twelve samples collected between September 2016 and August 2019.

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

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

Average Monthly Effluent Limitation (AMEL)

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

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)

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

Where:

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

$C_c (W\text{-avg})$ = average weekly

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

- (a) **WQO.** The Basin Plan contains fish tissue objectives for all Sacramento-San Joaquin Delta waterways listed in Appendix 43 of the Basin Plan, which states, “...*the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length.*” The Delta Mercury Control Program contains aqueous methylmercury WLA’s that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 ng/L (the concentration of methylmercury in water to meet the fish tissue objective). The Facility is allocated 0.38 grams/year of methylmercury by 31 December 2030, as listed in Table IV-7B of the Basin Plan.

The CTR contains a human health criterion of 50 ng/L for total mercury for waters from which both water and aquatic organisms are consumed. However, in 40 C.F.R. part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that “...*more stringent mercury limits may be determined and implemented through the use of the State’s narrative criterion.*” In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

The State Water Board adopted Resolution 2017-0027 on 2 May 2017, which approved Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions (Statewide Mercury Provisions). The Statewide Mercury Provisions establish a Sport Fish Water Quality Objective of an average 0.2 mg/kg methylmercury fish tissue concentration within a calendar year for waters with the beneficial uses of commercial and sport fishing (COMM), tribal

tradition and culture (CUL), wildlife habitat (WILD), and marine habitat (MAR). This fish tissue objective corresponds to a water column concentration of 12 ng/L of total mercury for flowing water bodies (e.g., rivers, creeks, streams, and waters with tidal mixing). As shown in Table F-3, the beneficial uses of the San Joaquin River within the Sacramento-San Joaquin Delta include COMM and WILD; therefore, the Sport Fish Water Quality Objective is applicable. However, the mercury water quality objectives established in the Statewide Mercury Provisions do not supersede the site-specific numeric mercury water quality objectives established in the Basin Plan, and section IV.D.1 of the Statewide Mercury Provisions specifies that the implementation provisions do not apply to dischargers that discharge to receiving waters for which a mercury or methylmercury TMDL is established pertaining to the same beneficial use or uses. Consequently, this Order continues to implement the Basin Plan's Delta Mercury Control Program for the control of methylmercury in the receiving water.

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

The maximum effluent concentration (MEC) for mercury was 1.33 ng/L based on 12 samples collected between August 2016 and September 2019. The maximum observed upstream receiving water mercury concentration was 17.9 ng/L based on twelve samples collected between August 2016 and September 2019.

The MEC for methylmercury was 0.04 ng/L based on 12 samples collected between August 2016 and September 2019. The maximum observed upstream receiving water methylmercury concentration was 0.46 ng/L based on twelve samples collected between August 2016 and September 2019.

- (c) **WQBEL's.** The Basin Plan's Delta Mercury Control Program includes WLA's for POTW's in the Delta, including for the Discharger. This Order contains a final WQBEL for methylmercury based on the WLA. Effective 31 December 2030, the total calendar annual methylmercury load shall not exceed 0.38 grams.
- (d) **Plant Performance and Attainability.** A compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been *established in section VI.C.7.b of this Order. The final WQBEL's for methylmercury are effective 31 December 2030.

- b. **Constituents with No Reasonable Potential.** 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 CMC of 386 µg/L and CCC of 268 µg/L were calculated considering the reasonable worst-case pH, hardness, and DOC of the receiving water and effluent. Lower values for pH, hardness, and DOC result in more stringent criteria. Therefore, in this case, considering sampling results from September 2016 and August 2019, the lowest measured pH and hardness for the effluent and receiving water were used to calculate criteria. In the absence of DOC data, the criteria were calculated considering a conservative assumption of DOC for the receiving water and effluent of 1 mg/L and 5 mg/L, respectively.

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

The maximum annual average effluent concentration for aluminum was 12 µg/L based on 12 samples collected between January and December 2017. Effluent aluminum is consistently less than the concentrations in the receiving water and below the Secondary MCL. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of aluminum.

For the NAWQC the RPA was conducted considering the maximum effluent concentration (MEC) for aluminum, which was

16.5 µg/L based on 12 samples collected between January and December 2017. 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. **Copper**

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent.
- (b) **RPA Results.** Section IV.C.2 of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as copper. The CTR includes hardness-dependent criteria for copper for the receiving water. The maximum observed upstream receiving water copper concentration was 5.1 µg/L, based on 11 samples collected between 1 September 2016 and 31 August 2019. The RPA was conducted using the upstream receiving water hardness to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the maximum effluent concentration. The table below shows the specific criteria used for the RPA:

Water Type	CTR Chronic Criterion (Total Recoverable)	Maximum Concentration (Total Recoverable)	Reasonable Potential? (Y/N)
Receiving Water	5.3 µg/L	5.1 µg/L	No
Effluent	8.5 µg/L	2.6 µg/L	No

Table Notes:

- 1. **Receiving Water.** The CTR Chronic Criterion (Total Recoverable) for the receiving water is based on the paired upstream hardness of 52 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
- 2. **Effluent.** The CTR Chronic Criterion (Total Recoverable) for the effluent is based on reasonable worst-case downstream

hardness of 90 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Based on the available data, copper in the discharge has no reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

iii. **Lead**

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent.
- (b) **RPA Results.** Section IV.C.2 of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as lead. The CTR includes hardness-dependent criteria for lead for the receiving water. The maximum observed upstream receiving water lead concentration was 1.1 µg/L, based on 11 samples collected between 1 September 2016 and 31 August 2019. The RPA was conducted using the upstream receiving water hardness to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the maximum effluent concentration. The table below shows the specific criteria used for the RPA:

Water Type	CTR Chronic Criterion (Total Recoverable)	Maximum Concentration (Total Recoverable)	Reasonable Potential? (Y/N)
Receiving Water	1.4 µg/L	1.1 µg/L	No
Effluent	1.4 µg/L	0.4 µg/L	No

Table Notes:

1. **Receiving Water.** The CTR Chronic Criterion (Total Recoverable) for the receiving water is based on the paired upstream hardness of 52 mg/L (as CaCO₃). Reasonable potential for the receiving water is per section 1.3, step 4 of the SIP.
2. **Effluent.** The CTR Chronic Criterion (Total Recoverable) for the effluent is based on reasonable worst-case downstream

hardness of 76 mg/L (as CaCO₃). Reasonable potential for the Effluent is per section 1.3, step 6 of the SIP.

Based on the available data, lead in the discharge has no reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

iv. **Salinity**

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

Table F-9. Salinity Water Quality Criteria/Objectives

Parameters	Bay-Delta Plan	Secondary MCL	U.S. EPA NAWQC	Maximum Calendar Annual Average Effluent Concentration	Maximum Daily Effluent Concentration
Chloride (mg/L)	N/A	250, 500, 600	860 1-hour / 230 4-day	110	120
EC (µmhos/cm) or TDS (mg/L)	See Table Note 2	EC 900, 1,600, 2,200 or TDS 500, 1,000, 1,500	N/A	EC 764 or TDS 434	EC 817 or TDS 514
Sulfate (mg/L)	N/A	250, 500, 600	N/A	31	36

Table F-9 Notes:

1. **Secondary MCL.** Secondary Maximum Contaminant Levels are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
2. **Bay-Delta Plan.** Currently effective electrical conductivity water quality objective is 700 µmhos/cm (April – August) and 1,000 µmhos/cm (September – March), applied as a 30-day running average of mean daily electrical conductivity. Pending revised electrical

conductivity water quality objective is 1,000 $\mu\text{mhos/cm}$ (year-round), applied as a 30-day running average of mean daily electrical conductivity.

- (1) **Chloride.** The Secondary MCL for chloride is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The NAWQC acute criterion for the protection of freshwater aquatic life for chloride is 860 mg/L and the chronic criterion is 230 mg/L.
- (2) **Electrical Conductivity (EC) or Total Dissolved Solids (TDS).** The Secondary MCL for EC is 900 $\mu\text{mhos/cm}$ as a recommended level, 1,600 $\mu\text{mhos/cm}$ as an upper level, and 2,200 $\mu\text{mhos/cm}$ as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum.

The Bay-Delta Plan includes water quality objectives for electrical conductivity for the South Delta in the vicinity of the discharge. 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. On 9 October 2014, the Superior Court for Sacramento County entered a judgment and peremptory writ of mandate in the matter of City of Manteca v. State Water Resources Control Board and California Regional Water Quality Control Board for the Central Valley Region (Case No. 34-2011-80000831), ruling that the southern Delta agricultural electrical conductivity water quality objectives provided in the Bay-Delta Plan were not lawfully applied in Order R5-2009-0095.

As discuss in Section III.C.1.b of the Fact Sheet the State Water Board adopted revised salinity water quality objectives for the South Delta of 1,000 $\mu\text{mhos/cm}$ maximum, applied as a 30-day running average of mean daily electrical conductivity (year-round) and program of implementation for municipal dischargers. However, the updated water quality objectives have not been approved by U.S. EPA so they are not in effect. Therefore, at the time this Order was adopted the South Delta salinity objectives were not applicable to the Discharger.

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

(b) **RPA Results.**

- (1) **Chloride.** Chloride concentrations in the effluent ranged from 92 mg/L to 120 mg/L, with a maximum annual average of 110 mg/L based on 12 samples collected between 1 September 2016 to 31 August 2019. These levels do not exceed the Secondary MCL. The Discharge does not have reasonable potential for chloride.
- (2) **Electrical Conductivity (EC) or Total Dissolved Solids (TDS).** A review of the Discharger's monitoring reports shows a maximum annual average effluent electrical conductivity of 764 $\mu\text{mhos/cm}$, with a range from 693 $\mu\text{mhos/cm}$ to 827 $\mu\text{mhos/cm}$. These levels do not exceed the Secondary MCL or the revised salinity water quality objectives for the Bay-Delta Plan. The Discharge does not have reasonable potential for EC.

The maximum annual average total dissolved solids effluent concentration was 434 mg/L with concentrations ranging from 377 mg/L to 514 mg/L based on 12 samples collected between 1 September 2016 to 31 August 2019. These levels do not exceed the Secondary MCL. The Discharge does not have reasonable potential for TDS.

- (3) **Sulfate.** Sulfate concentrations in the effluent ranged from 26 mg/L to 37 mg/L, with a maximum annual average of 31 mg/L based on 12 samples collected between 1 September 2016 to 31 August 2019. These levels do not exceed the Secondary MCL. The Discharge does not have reasonable potential for sulfate.

- (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 1000 $\mu\text{mhos/cm}$ for EC to be applied as a calendar annual average effluent limitation (AAEL) to limit the discharge to current levels. The AAEL, which has been carried forward from previous Order R5-2015-0026, is based on Facility performance and adjusted to account for possible drought, water conservation, and water recycling efforts. Furthermore, 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. If the Discharger is authorized to participate in the Conservative Salinity Permitting Approach the conservative salinity limits required by the Salinity Control Program will be applied, which may result in more stringent effluent limits.

- (d) **Plant Performance and Attainability.** Analysis of the effluent data for electrical conductivity shows that consistent compliance with the performance-based annual average of 1,000 $\mu\text{mhos/cm}$ is feasible.
- c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, BOD₅, copper, lead, nitrate plus nitrite, pathogens, pH, temperature, and TSS. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.
 - i. **Ammonia**
 - (a) **WQO.** The 2013 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for

total ammonia (2013 Criteria), recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

The 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including toxicity data on sensitive freshwater unionid mussels, non-pulmonary snails, and other freshwater organisms. The inclusion of new toxicity data for unionid mussels resulted in substantially reduced 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 can 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 ammonia 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 national 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 II.b of the study involved further study and application of the eDNA methodology.

CVCWA submitted the Phase II.c 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 national 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 acute (1-hour average) criterion or CMC was calculated using paired effluent pH and temperature data, collected during the period from 1 September 2016 through 31 August 2019. The most stringent CMC of 5.5 mg/L (ammonia as N) calculated using the paired effluent pH and temperature data has been implemented in this Order for the summer season (April to November). The most stringent CMC of 13.3 mg/L (ammonia as N) calculated using the paired effluent pH and temperature data has been implemented in this Order for the winter season (December to March).

The chronic (30-day average) criterion or CCC was calculated using paired effluent pH and temperature data, collected during the period from 1 September 2016 through 31 August 2019. The

most stringent summer season 30-day rolling average CCC of 1.5 mg/L (ammonia as N) has been implemented in this Order. The most stringent winter season 30-day rolling average CCC of 2.7 mg/L (ammonia as N) has been implemented in this Order.

The chronic (4-day average) concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.5 mg/L (ammonia as N), the 4-day average concentration that should not be exceeded is 3.7 mg/L (ammonia as N) for the summer season. Based on the 30-day CCC of 2.7 mg/L (ammonia as N), the 4-day average concentration that should not be exceeded is 6.7 mg/L (ammonia as N) for the winter season.

- (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 a final AMEL and AWEL for ammonia (as N) of 2.5 mg/L and 6.2 mg/L, respectively, for the winter season (1 December to 31 March) and 2.0 mg/L and 4.2 mg/L, respectively, for the summer season (1 April to 30 November).

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

iv. **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, as a single parameter, of 10 mg/L and 15.3 mg/L, respectively, based on the Basin Plan’s narrative chemical constituents objective for protection of the MUN beneficial use.

- (d) **Plant Performance and Attainability.** The maximum observed monthly average effluent nitrate plus nitrite concentration was 6.9 mg/L, which occurred in May 2019. The effluent monthly average concentrations were below 10 mg/L. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **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 San Joaquin River 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 that is designed to achieve Title 22 criteria. Therefore, the Central Valley Water Board concludes that immediate compliance with these

effluent limitations is feasible for tertiary treated discharges from the Facility.

vi. **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 1,091 samples taken from 1 September 2016 to 31 August 2019, the maximum pH reported was 7.8 and the minimum was 6.4. The Facility exceeded the instantaneous minimum effluent limitation 1 time on 3 January 2018. Since 3 January 2018, the minimum pH reported was 6.5. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBEL's for pH are required in this Order.

- (c) **WQBEL's.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Analysis of effluent pH data shows that immediate compliance with the WQBEL's is feasible.

vii. **Temperature**

- (a) **WQO.** The Thermal Plan requires that, "The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F."
- (b) **RPA Results.** Treated domestic wastewater is an elevated temperature waste, which could cause or threaten to cause the receiving water temperature to exceed temperature objectives established in the Thermal Plan. Therefore, reasonable potential exists for temperature and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) 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. Temperature is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

The Facility is a POTW that treats domestic wastewater, which is an elevated temperature waste. This provides the basis for the discharge to have a reasonable potential to cause or contribute to an excursion above the requirements of the Thermal Plan.

- (c) **WQBEL's.** To ensure compliance with the Thermal Plan, an effluent limitation for temperature is included in this Order.
- (d) **Plant Performance and Attainability.** Monitoring data indicates that consistent compliance with the requirements of the Thermal Plan is feasible.

4. WQBEL Calculations

- a. This Order includes WQBEL's for ammonia, BOD₅, copper, electrical conductivity, lead, mercury, nitrate plus nitrite, pH, temperature, total coliform organisms, and TSS. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.5.b through e, below. See Attachment H for the WQBEL calculations.
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

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

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.

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

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

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

where:

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

**Summary of Water Quality-Based Effluent Limitations
 Discharge Point No. 001**

Table F-10. 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	milligrams per liter (mg/L)	10	15	--
BOD Percent Removal	Percent	85	--	--
Total Suspended Solids (TSS)	mg/L	10	15	--
TSS Percent Removal	Percent	85	--	--
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	mg/L	2.0	4.2	--
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	pounds per day (lbs/day) (see table note 1. below)	160	340	--
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	lbs/day (see table note 2. below)	290	610	--
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	mg/L	2.5	6.2	--

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	lbs/day (see table note 1. below)	200	510	--
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	lbs/day (see table note 2. below)	360	910	--
Nitrate Plus Nitrite (as N)	mg/L	10	15.3	--
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	1,000 (see table note 5. below)	--	--
Methylmercury	grams/year	0.38 (see table note 6. below)	--	--
Temperature	°F	--	(see table note 7 below)	
pH	Standard Units	--	--	Instantaneous Max 8.5 Instantaneous Min 6.5
Total Coliform Organisms	MPN/100 mL	--	2.2 (see table note 8)	MDEL 23 (see table note 9) Instantaneous Max 240
Acute Whole Effluent Toxicity	Percent Survival	--	--	70/90 (see table note 10 and 11 below)

Table F-10 Notes:

1. Based on an average dry weather flow of 9.87 million gallons per day (MGD). Effective immediately and until Executive Officer's written approval of flow increase (Special Provisions VI.C.6.b).
2. Based on an average dry weather flow of 17.5 MGD. Effective upon Executive Officer's written approval of flow increase (Special Provisions VI.C.6.b).

3. 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 $\mu\text{g/L}$
4. Average Weekly Effluent Limitation (AWEL)
 $S(\text{AWEL}) = C_d (\text{W-avg})/0.079 + C_c (\text{W-avg})/0.012 \leq 1.0$
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 $\mu\text{g/L}$
5. Applied as an annual average effluent limitation.
6. The effluent calendar year annual methylmercury load shall not exceed 0.38 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.
7. The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
8. Applied as a 7-day median effluent limitation.
9. Not to be exceeded more than once in any 30-day period.
10. 70 percent minimum of any one bioassay.
11. 90 percent median for any three consecutive bioassays.

5. Whole Effluent Toxicity (WET)

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

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

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

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

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "*Guidance for NPDES Permit Issuance,*" dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Consistent with Order R5-2015-0026, effluent limitations for acute toxicity have been included in this Order as follows:

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

70%, minimum for any one bioassay; and

90%, median for any three consecutive bioassays.

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life" (Basin Plan at section 3.1.20). Table F-11, below, includes chronic WET testing performed by the Discharger from September 2016 through August 2019. This data was used to determine if the discharge at Discharge Point 001 has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Table F-11. 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)
09/12/2016	1	1	1	1	1
01/06/2017	1	1	1	1	1
03/20/2017	1	1	1	1	1
06/26/2017	1	1	1	1	1
08/24/2017	1	1	1	1	1
12/22/2017	1	1	1	1	1
03/19/2018	1	1	1	1	1
05/15/2018	1	1	1	1	1
06/26/2018	1	1	1	1	1
12/14/2018	1	1	1	1	1
03/15/2019	1	1	1	1	1
06/20/2019	1	1	1	1	1

- i. **RPA.** No dilution has been granted for chronic whole effluent toxicity. Chronic toxicity testing results exceeding 1.3 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. Based on chronic toxicity testing conducted between 1 September 2016 and 31 August 2019 the chronic toxicity results were all 1 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 CF.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL’s) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

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

2. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2015-0026, with the exception of effluent limitations for ammonia, BOD₅, and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2015-0026. 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 ammonia, BOD₅, and TSS because the receiving water is not listed as impaired on the 303(d) list for this constituent. 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 of the effluent limits complies with federal and state antidegradation requirements. Thus, the relaxation of ammonia effluent limitations and removal of the maximum daily effluent limitations and mass limitations for BOD₅ and TSS from Order R5-2015-0026 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 R5-2015-0026 was issued indicates less stringent ammonia effluent limitations are needed. The updated information that supports the relaxation of effluent limitations for ammonia includes the following:

- i. **Ammonia.** The ammonia effluent limitations have been revised based on new site-specific ammonia water quality criteria and based on updated pH and temperature data used for the calculation of the ammonia water quality criteria.

3. Antidegradation Policies

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

- a. **Surface 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 ammonia will not result in an increase in pollutant concentrations 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 relaxation of the ammonia effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. The relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Antidegradation Policy.

This Order removes MDEL's and mass-based effluent limitations for BOD₅ and TSS based on 40 C.F.R part 122.45(d) and (f), and as described further in section IV.D.3 of this Fact Sheet. The removal of MDEL's 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 a discharge flow prohibition that limits the amount of flow that can be discharged to the receiving water. The combination of concentration-based effluent limits and a flow

prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and permitted average dry weather flow by a conversion factor to determine the mass-based effluent limitations. Therefore, the Central Valley Water Board finds that the removal of MDEL's and mass-based effluent limits for BOD₅ and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. The relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Antidegradation Policy.

- b. **Groundwater.** The Discharger's available groundwater monitoring data indicate that underlying groundwater concentration levels for some constituents (e.g. EC/TDS, manganese, and nitrate) are elevated in some areas within the Facility. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:

- the degradation is limited in extent;
- the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
- the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- the degradation does not result in water quality less than that prescribed in the Basin Plan.

The Discharger has made several improvements to reduce impacts to groundwater. The Discharger ceased applying biosolids to the Land Application Areas and since June 2003 hauls biosolids to an offsite landfill. The Discharger also supplemented its drinking water supply with surface water in August 2005 that reduced the salinity of the discharge, and added nitrification-denitrification facilities in July 2006 to its treatment system to reduce total nitrogen. These operational changes and Facility upgrades are considered appropriate BPTCs.

In 2007, the Facility was also modified to fully separate the food-processing waste received from Eckert Cold Storage to discharge into the Facility's pond, which is tetra lined, and then applied to agricultural land as needed. As approved by the Central Valley Water Board and USEPA, Eckert was removed from the Discharger's Pretreatment Program, and instead, is regulated through

a local ordinance wastewater discharge permit. The local ordinance in part requires Eckert to submit reports, sample their discharge, and develop any plans (e.g. pollution prevention) that are deemed necessary. Eckert Cold Storage is a seasonal discharger that processes frozen vegetables, cabbage and a variety of peppers. The food processing wastewater is pretreated by screening, DAF system, and pH neutralization before discharging to the Facility.

The Discharger was required in previous Order R5-2009-0095 to perform a BPTC Evaluation to ensure that land application of its effluent is consistent with the State Water Board Resolution No 68-16. In October 2012 the Discharger submitted a BPTC Evaluation that considered several constituents of concern (i.e., total coliform organisms, TDS, electrical conductivity, nitrate, nitrite, pH, and ammonia). It was determined that degradation was occurring in downgradient wells for EC/TDS and nitrate (as N).

- i. **EC/TDS.** The Discharger has reduced the salinity levels in its effluent through improvements in the municipal water supply. The salinity of the irrigation water is currently lower than the underlying groundwater and it is expected that over time the groundwater underlying the fields should improve. However, an overall improvement in down-gradient groundwater quality in conjunction with improvement in effluent quality with respect to salts has not occurred. This may be due to continued leaching of accumulated salts in the unsaturated zone that are masking effects of improved effluent quality in down-gradient wells. This Order includes a performance-based TDS trigger for the wastewater applied to the fields, which ensures the salinity of the wastewater will not increase over the current levels. If the trigger is exceeded the Discharger would be required to conduct an evaluation to determine the reason(s) for the increased TDS concentrations. The evaluation would include an explanation of the increased concentrations and a determination if it represents an increase in mass loading of TDS to the Land Application Areas that would require an Antidegradation Analysis update, including additional BPTC evaluations, to demonstrate the increased mass loading is consistent with the Antidegradation Policy.
- ii. **Nitrate as N.** Overall, nitrate (as N) concentrations appear to be improving in the groundwater underlying the fields, though concentrations are still above the Primary MCL in most down-gradient wells and at or below the Primary MCL in the background well. The Facility has been upgraded to include nitrification/denitrification and land application area specifications are included to minimize nitrogen discharges to groundwater. This Order requires that the total nitrogen mass loading to the Land Application Areas shall not exceed the agronomic rate for the crop grown and the hydraulic loading rate shall also be at agronomic rates. The Discharger submits Nutrient Management Plans annually indicating that total nitrogen loadings are below crop demands at all times but that the agronomic hydraulic

loading rate is occasionally exceeded in some months. Starting in the 2015 planting season, the Discharger switched to planting alfalfa, a year-round crop with stable water and nutrient demand throughout the year. The Discharger has also improved the operation efficiency of its water delivery system to the fields. As a result, nitrate (as N) concentrations have been steadily decreasing in the groundwater underlying the fields.

- iii. **Manganese.** Dissolved manganese concentrations are very low in background groundwater and in most of the downgradient groundwater monitoring wells. However, the dissolved manganese concentrations in downgradient monitoring wells MW-5 and MW-10 ranges between 13 µg/L to 527 µg/L and 719 µg/L and 2160 µg/L, respectively, which is much higher than the upgradient background well concentrations of 0.1 µg/L to 0.8 µg/L. The wastewater being applied to the LAAs is low in manganese and the BOD5 loading is not at levels that would result in reducing conditions that can mobilize metals in the soil. Based on the evaluation of the low wastewater manganese concentrations, the low BOD5 concentrations of the irrigation water applied into the land application areas, field average irrigation cycle (about 10 days), shallow groundwater, and long term regional agricultural practices, staff determined that the difference in dissolved manganese concentrations among the downgradient wells is due to spatial and temporal variability. Similar groundwater characteristics in terms of spatial and temporal variability for manganese have also been observed and evaluated in City of Lathrop, which is north of Manteca and Oakwood Lake Water District, which is directly south of Manteca. Therefore, it is not appropriate to determine whether the discharge has caused degradation by a simple well-by-well comparison to a background value. The Discharger is required to continue implementing best management practices, which include, but are not limited to, maintaining an irrigation system that allows even distribution of the BOD5 loading into the LAAs to ensure the land application practices do not contribute to the elevated manganese.

The Discharger has made improvements to reduce the salinity in the irrigation water and this Order contains groundwater limitations, land application area specifications, and reclamation specifications for the protection of the beneficial uses of groundwater and is consistent with State Water Board Resolution 68-16. Quarterly groundwater monitoring for nitrate, manganese, and EC/TDS is included in this Order. This Order contains groundwater limitations for nitrate.

4. 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 these constituents are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-

based requirements. For BOD₅, pH, and TSS, both technology-based effluent limitations and WQBEL's are applicable. The more stringent of these effluent limitations are implemented by this Order. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
Discharge Point 001**

Table F-12. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis¹
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	milligrams per liter (mg/L)	AMEL 10 AWEL 15	TTC
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	% removal	AMEL 85	CFR
pH	Standard Units	Instantaneous Max 8.5 Instantaneous Min 6.5	BP
Total Suspended Solids	mg/L	AMEL 10 AWEL 15	TTC
Total Suspended Solids	% removal	AMEL 85	CFR
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	mg/L	AMEL 2.0 AWEL 4.2	NAWQC
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	pounds per day (lbs/day) (see table note 4. below)	AMEL 160 AWEL 340	NAWQC
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	lbs/day (see table note 5. below)	AMEL 290 AWEL 610	NAWQC

Ammonia Nitrogen, Total (as N) (1 December – 31 March)	mg/L	AMEL 2.5 AWEL 6.2	NAWQC
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	lbs/day (see table note 4. below)	AMEL 200 AWEL 510	NAWQC
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	lbs/day (see table note 5. below)	AMEL 360 AWEL 910	NAWQC
Chlorpyrifos	µg/L	(see table notes 8. and 9. below)	TMDL
Diazinon	µg/L	(see table notes 8. and 9. below)	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	AMEL 1,000 (see table note 10.)	PB
Methylmercury	grams/year	AAEL 0.38 (see table note 11. below)	TMDL
Nitrate Plus Nitrite, Total (as N)	mg/L	AMEL 10 AWEL 15.3	MCL
Temperature	°F	(see table note 12. below)	TP
Total Coliform Organisms	MPN/100 mL	AWEL 2.2 (see table note 13. below) MDEL 23 (see table note 14. below) Instantaneous Max 240	Title 22
Acute Toxicity	% Survival	MDEL 70/90 (see table notes 15. and 16. below)	BP

Table F-12 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).
- Effective until the Discharger demonstrates compliance with Special Provision VI.C.6.b of this Order, the average dry weather flow shall not exceed 9.87 MGD.
- Effective upon compliance with Special Provision VI.C.6.b of this Order, the average dry weather flow shall not exceed 17.5 MGD.

4. Based on an average dry weather flow of 9.87 MGD. Effective immediately and until Executive Officer's written approval of flow increase (Special Provisions VI.C.6.b).
5. Based on an average dry weather flow of 17.5 MGD. Effective upon Executive Officer's written approval of flow increase (Special Provisions VI.C.6.b).
6. Applied as a 4-day average effluent limitation.
7. Applied as a 1-hour average effluent limitation.
8. Average Monthly Effluent Limitation (AMEL)
 $S(\text{AMEL}) = C_d (\text{M-avg})/0.079 + C_c (\text{M-avg})/0.012 \leq 1.0$
Where:
Cd(M-avg) = average monthly diazinon effluent concentration in µg/L
Cc (M-avg) = average monthly chlorpyrifos effluent concentration in µg/L
9. Average Weekly Effluent Limitation (AWEL)
 $S(\text{AWEL}) = C_d (\text{W-avg})/0.079 + C_c (\text{W-avg})/0.012 \leq 1.0$
Where:
Cd(W-avg) = average weekly diazinon effluent concentration in µg/L
Cc (W-avg) = average weekly chlorpyrifos effluent concentration in µg/L
10. Applied as an annual average effluent limitation.
11. The effluent calendar year annual methylmercury load shall not exceed 0.38 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.
12. The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
13. Applied as a 7-day median effluent limitation.
14. Not to be exceeded more than once in any 30-day period.
15. 70 percent minimum of any one bioassay.
16. 90 percent median for any three consecutive bioassays.

E. Interim Effluent Limitations

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

1. Methylmercury

- a. **Compliance Schedule.** This Order contains a final effluent limitation for methylmercury based on the Basin Plan's Delta Mercury Control Program that became effective on 20 October 2011. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application

demonstrates the need for additional time to implement actions to comply with the final effluent limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury is established in the Order.

A compliance schedule is necessary because the Discharger must implement actions to comply with the final effluent limitations.

The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The Discharger conducted monthly monitoring for mercury and methylmercury during the term of Order R5 2015-0026. The Discharger has developed and continues to implement a pollution prevention plan for mercury, which was submitted to the Central Valley Water Board on 24 November 2015 and provided annual progress reports during the term of Order R5-2015-0026.

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

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

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

The interim effluent limitations for total mercury are based on Facility performance. The Delta Mercury Control Program requires POTW's to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not

exceed the 99.9th percentile of the 12 month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges.

This Order retains the interim performance-based effluent limitation for total mercury from Order R5-2015-0026, which is consistent with the intent of the TMDL to not penalize dischargers for early actions to reduce mercury. The interim effluent limitation for total mercury shall apply in lieu of the final effluent limitation for methylmercury.

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

F. Land Discharge Specifications

1. **Scope and Authority.** Title 27 regulations conditionally exempt certain activities from its provisions. Several exemptions are relevant to the discharge of wastewater to land, and the operation of treatment and/or storage ponds, associated with the Facility.
2. **Applicable Waste Discharge Requirements.** Since the Discharger applies undisinfected secondary recycled municipal wastewater that is mixed with food processing industrial wastewater from Eckert Cold Storage, which is a food processor of frozen vegetables (e.g., cabbage and a variety of peppers), the Recycling General Order requirements cannot be applied to the Land Application Areas. Food processing wastewater is of higher strength than secondary treated domestic wastewater and requires additional regulations to protect groundwater and prevent nuisance. Food process wastewater contains greater concentrations of biochemical oxygen demand, total nitrogen, and total dissolved solids. Consequently, this Order contains the following waste discharge requirements:
 - a. **Hydraulic, BOD₅, and Nitrogen Loading.** Soils within the land application area provide a matrix for biodegradation of the organic

components of wastewater, which is measured as BOD. BOD is associated with both suspended solids and dissolved organic material. The BOD associated with suspended solids will remain close to the surface where the soil organisms have access to atmospheric oxygen to break the material down. The BOD in the dissolved organic material will percolate through the unsaturated zone of the soil and, under aerobic conditions, be removed during percolation. If the loading is too great, the soil will become anaerobic, and the crop and treatment process will fail.

The Discharger is required to obtain daily hydraulic and BOD5 loading data and weekly total Nitrogen loading data per field when irrigation is occurring and to submit monthly reports. The Discharger's data indicates that the total monthly BOD5 loading rates are low (e.g., <28 lbs/acre/day) and certifies that the loadings are at agronomic rates. However, the reports do not indicate the amount of loadings per field for each irrigation event.

Small and Decentralized Wastewater Management Systems by Crites and Tchobanoglous, states that land application is an effective process for BOD and pathogen removal. BOD loadings "*on industrial rapid infiltration systems range from 100 to 600 lbs/acre/day.*" The authors recommend as a guideline for industrial wastewater discharges no more than 300 lbs/acre/day to avoid odor production. The municipal influent consists of residential and industrial users. Industrial users constitute less than one percent of the Facility's influent. Therefore, to ensure compliance with Discharge Prohibition III.E. and Groundwater Limitations V.B this Order contains a maximum BOD loading limit of 300 lbs/acre/day as a daily average based on this recommendation. Furthermore, because waste applications must be balanced to provide adequate plant nutrients and water while minimizing nuisance potential and percolation of waste constituents to the water table, this Order also requires hydraulic and total nitrogen loadings at agronomic rates.

- b. **TDS Trigger.** The salinity concentrations of the groundwater underlying the agricultural fields exceed background salinity levels. The Discharger has made improvements to its water supply that have resulted in reductions in effluent salinity, the Discharger is implementing a pollution prevention plan for salinity, and requires Eckert Cold Storage to also implement pollution minimization for salinity. The recent TDS concentrations being applied to the fields are lower than the groundwater concentrations and substantially lower than the site-specific water quality objective. The Discharger submitted a BPTC evaluation in October 2012 that demonstrated the operational changes and Facility upgrades comply with the Antidegradation Policy based on the current TDS loadings. To ensure salinity concentrations do not increase significantly over current levels and the Discharger continues to implement BPTC in accordance with the Antidegradation Policy, this Order includes a performance-based

TDS trigger for the irrigation water. The trigger was statistically calculated (i.e., 95th percentile) based on the annual average TDS concentrations from 2010 – 2014 (Table F-12). The TDS concentration of the irrigation water was below this trigger during the previous permit term.

Table F-13. Calendar Annual Average TDS concentrations applied to LAAs

Year	TDS Annual Average
2010	545
2011	495
2012	456
2013	443
2014	463

3. **Prohibition to Discharge Hazardous Waste.** Hazardous compounds are not usually associated with domestic or food processing wastewater and when present are reduced in the discharge to inconsequential concentrations through treatment or dilution. Still it is inappropriate to allow degradation of groundwater with such constituents, and therefore, this Order contains a prohibition to discharge waste classified as “hazardous” under Title 23 CCR Chapter 15, Section 2521 (Section IV.A.5. of this Fact Sheet).

G. Recycling Specifications

Reclaimed water must meet the requirements of CCRs, Title 22, Division 4, Chapter 3. Water Recycling Criteria. The Discharger supplies recycled water for construction purposes and dust control, sanitary sewer cleaning, and landscape irrigation, and therefore, this Order contains reclamation requirements for the production of Title 22 disinfected tertiary recycled water supplied to the Discharger’s customers. These specifications are necessary to reduce public health concerns and comply with the requirements of Title 22. The Discharger submitted a Title 22 Engineering Report and Technical Report for use of recycled water, dated May 2019, which were reviewed and approved by DDW in June 2019. The Discharger was issued a Notice of Applicability for coverage under the State Water Board Recycled Water General Order WQ 2016-0068-DDW, which regulates the use of reclaimed water. This Order only regulates the production of recycled water.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains

receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

- a. **Temperature.** The Thermal Plan is applicable to the discharge from the Facility. For the purposes of the Thermal Plan, the discharge is considered to be an Existing Discharge of Elevated Temperature Waste to an Estuary, as defined in the Thermal Plan. Therefore, the Discharger must meet the water quality objective at section 5.A.(1) of the Thermal Plan, which requires compliance with the following:
 - i. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.
 - ii. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.
 - iii. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.
 - iv. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

This Order contains receiving water limitations for temperature based on the Thermal Plan.

- b. **Turbidity.** Order R5-2009-0095 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. Consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii)

will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. §131.12).

This Order includes operational specifications that require the Discharger to operate the treatment system to insure that turbidity shall not exceed 2 NTU as a daily average, and 5 NTU more than 5 percent of the time within a 24 hour period, and 10 NTU, at any time. Because this Order limits the average daily discharge of turbidity to 2 NTU, the Order will be protective of the receiving water under all natural background conditions as defined in the Basin Plan's revised water quality objective for turbidity. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 C.F.R. §131.12).

The revised receiving water limitation for turbidity, which is based on the amendment to the Basin Plan's turbidity water quality objective, reflects current scientifically supported turbidity requirements for the protection of aquatic life and other beneficial uses and, therefore, will be fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in turbidity allowed by the revised receiving water limitation, when ambient turbidity is below 1 NTU, would not adversely affect beneficial uses and would maintain water quality at a level higher than necessary to protect beneficial uses. Restricting low-level turbidity changes further may require costly upgrades, which would not provide any additional protection of beneficial uses. Thus, any changes in turbidity that would occur under the amended turbidity receiving water limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the relaxed receiving water limitations for turbidity will not violate antidegradation policies.

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 prohibit 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. For natural background quality, the level of groundwater quality is dependent upon the background conditions. Historical data is not available to determine natural background conditions before any discharges from the Facility. Therefore, Central Valley Water Board staff rely on present-day sampling from upgradient monitoring locations to represent the range of water quality that otherwise would have been expected at the site before the Facility was operational. The Discharger conducted a groundwater characterization study of the City of Manteca and surrounding area, and submitted the findings on 26 September 2006, Background Hydrogeologic Characterization Report. This report states *“One well, BG-1 [MW-AW] has been installed to evaluate background water quality upgradient of the facility. This well is located in the regionally upgradient direction of the Facility (southeast). This well appears to be near the transition area where background groundwater flow from the southeast and ground water flow from the mounded groundwater under the Facility meet, especially during the irrigations season. Water quality at this well is, however, believed to be dominated by recharge from the regionally upgradient groundwater and from seasonal rainfall.”* Historical regional water quality data obtained by Department of Water Resources, U.S. EPA, and US Geological Survey from 23 monitoring wells located within a 33 square mile area is generally similar to results obtained at the Discharger’s background monitoring well MW-AW. Based on this information and findings contained in the report, the Central Valley Water Board concurs that MW-AW is appropriate to effectively and fully characterize the background groundwater quality conditions within the vicinity of the Facility and the agricultural fields.
4. **Rationale for Groundwater Limitations.** The Discharger’s groundwater characterization study (Background Hydrogeologic Characterization Study, 26 September 2006, Condor Earth Technologies, Inc.) also summarized all groundwater data collected to date and concluded that *“groundwater quality under beneath and down gradient of the facility appear to be of poorer quality than upgradient groundwater for total dissolved solids, nitrate, and several of*

the trace metals.” However, since this report, the Discharger has implemented several management practices (e.g., nitrification-denitrification facilities, biosolids now sent off-site for disposal, etc.). Thus, the Discharger cannot fully evaluate actual impacts on groundwater due to current land application practices without completion of additional studies. Nevertheless, this Order contains numeric and narrative land discharge specifications and reclamation specifications (Section IV), narrative and numeric groundwater limitations (Section V), Special Studies (Section VI.C), and monitoring and reporting requirements (Attachment E) to protect the quality of the underlying groundwater and the applicable uses. Additionally, this Order does not allow an increased volume of waste or an increase in wastewater discharge to land compared to the discharges allowed in Order R5-2015-0026. The following provides Central Valley Water Board’s rationale for the groundwater limits contained in this Order:

- a. **Salinity.** Total dissolved solids, which were found to be present in the groundwater at an average concentration range from 261 mg/L to 911 mg/L, have the potential to degrade groundwater quality at this site because there is little ability for attenuation in the shallow permeable vadose zone beneath this Facility. The Bay-Delta Plan provides applicable numeric water quality objectives for salinity in the San Joaquin River. With regard to groundwater, however, there are no numeric objectives. Therefore, the Discharger was required to conduct a site-specific salinity study in Order R5-2009-0095 to determine the appropriate total dissolved solids and electrical conductivity levels to protect the agricultural beneficial use in the vicinity of the Facility. Based on these requirements, in October 2012 the Discharger submitted a Site-Specific Salinity Objectives Study for the Protection of Groundwater Agricultural Uses Report. To determine the Site-Specific Salinity Objectives, the Discharger used the Hoffman exponential model, which was developed in 2010 to determine Salt-tolerance of Crops in the Southern Sacramento-San Joaquin Delta Area. Soil type, crop evapotranspiration (depending on climate characteristics), soil water salinity (depending on salinity levels in irrigation water), and leaching fraction were the inputs included in the Hoffman model. Almonds were used as an example since they are heavily grown in the area of influence of the Facility and they are the most salt-sensitive crop. The model was run for conservative 0.10 and 0.15 leaching fractions, which likely results in deriving overly-protective salinity objectives for the irrigation water in the Facility area of influence where leaching fractions (L) are estimated to average 0.28. The precipitation conditions included in the model were: a) minimum rainfall of 4.2 in, which represents the driest conditions and b) median rainfall of 10.5 in, which represents a normal/above median precipitation. Based on the Hoffman-recommended model and an acceptable yield loss of 5% to almond crops, the proposed EC and TDS site-specific objectives for the protection of agricultural uses in the WQCF area of influence ranges from 950 μ mhos/cm to 1,700 μ mhos/cm and 600 mg/L to 1,070 mg/L, respectively. These ranges are

based on varying leaching fractions (L) and precipitation conditions described above. A groundwater limitation of 1,070 mg/L for TDS was established in Order R5-2015-0026 and carried over in this Order based on the site-specific objectives using a leaching fraction 0.15 and a median rainfall of 10.5, which represents typical conditions in the area of influence of the Facility.

- b. **Nitrate.** Nitrate, which was found to be present in the groundwater at an average concentration range from 0.01 mg/L to 13.7 mg/L as nitrogen, has the potential to degrade groundwater quality because there is little ability for attenuation in the shallow permeable vadose zone beneath the Facility. Furthermore, groundwater monitoring data show nitrate concentrations above the Primary MCL of 10 mg/L in monitoring wells MW-4, MW-9, and MW-11. The chemical constituents objective prohibits concentrations of chemical constituents in excess of California MCL's in groundwater that is designated as municipal or domestic supply. The California Primary MCL for nitrate is equivalent to 10 mg/L as nitrogen, and groundwater beneath the Facility is designated as municipal or domestic supply. This Order contains effluent and groundwater limitations carried over from previous Order R5-2015-0026; 10 mg/L and 15.3 mg/L.

Overall, nitrate (as N) concentrations appear to be improving in the groundwater underlying the fields, though concentrations are still above the Primary MCL in some down-gradient wells and at or below the Primary MCL in the background well. The Facility has been upgraded to include nitrification/denitrification and land application area specifications are included to minimize nitrogen discharges to groundwater. This Order requires that the total nitrogen mass loading to the Land Application Areas shall not exceed the agronomic rate for the crop grown and the hydraulic loading rate shall also be at agronomic rates. The Discharger submits annual Nutrient Management Plans indicating that total nitrogen loadings are below agronomic rates at all times but that the agronomic hydraulic loading rate is occasionally exceeded during some months of the year. Starting in the 2015 planting season, the Discharger switched to planting alfalfa, a year-round crop with stable water and nutrient demand throughout the year. The Discharger has also improved the operation efficiency of its water delivery system to the fields. As a result, nitrate (as N) concentrations have been steadily decreasing in the groundwater underlying the fields. Within continued improved operations, and an expected decrease in the acreage available for farming in the future, groundwater quality is expected to continue improving.

Final groundwater limitations for nitrate became effective 1 April 2020 and are carried over into this Order. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater. Based on groundwater quality data provided by the Discharger, it appears that the Discharger cannot immediately comply with the groundwater limitations for nitrate as N. The Discharger has reduced the loading of nitrogen applied to the fields, and

groundwater quality is improving. However, additional time is needed to fully comply with the groundwater limitations for nitrate as N. Therefore, this Order extends the time schedule for the discharge to come into compliance with the groundwater limitations for nitrate as N until 1 April 2026.

- c. **pH.** pH, which ranged from 6.4 to 7.8 standard units in the domestic wastewater and from 4.2 to 12.3 in the food processing wastewater, has the ability to degrade groundwater quality at this site because there is little potential for buffering in the shallow permeable vadose zone. According to Ayers and Westcot, pH less than 6.5 or greater than 8.4 can cause yield or vegetative growth reductions of sensitive crops if present in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of substances that affect pH is the narrative Chemical Constituents objective, which is applied following the "*Policy of Application of Water Quality Objectives*" in the Basin Plan. A numerical groundwater limitation range of 6.5 to 8.4 for pH, based on Ayers and Westcot, is relevant and appropriate to apply the narrative Chemical Constituents objective to protect unrestricted agricultural use of groundwater in the absence of information to support a less protective limit.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

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

B. Special Provisions

1. Reopener Provisions

- a. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 is currently underway. Phase 2 begins after the

Phase 1 Delta Mercury Control Program Review and Board approval. As a result of the Phase 1 Delta Mercury Control Program Review, changes may be needed to final allocations, implementation and monitoring requirements, and compliance schedules. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

- b. **Whole Effluent Toxicity.** 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 for copper and lead. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- d. **Ultraviolet Light (UV) Disinfection Operating Specifications.** UV system operating specifications are required to ensure that the UV system is operated to achieve the required pathogen removal. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. The UV specifications in this Order are based on the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI guidelines). If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation required by Title 22 for disinfected tertiary recycled water, this Order may be reopened to modify the UV specifications, in accordance with Reopener Provision VI.C.1.e.
- e. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020,

when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found at the following link:

[Central Valley Salinity Alternatives for Long-Term Sustainability \(CVSALTS\) web page:](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

- f. **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 and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00.) Based on whole effluent chronic toxicity testing performed by the Discharger from September 2016 through August 2019, the discharge has no reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The MRP of this Order requires chronic WET monitoring to demonstrate compliance with the Basin Plan's narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger defined in section VI.C.2.a of the Order, this provision requires the Discharger either participate in an approved TES or conduct a site-specific TRE.

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low-level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, CVCWA, in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order

allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-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

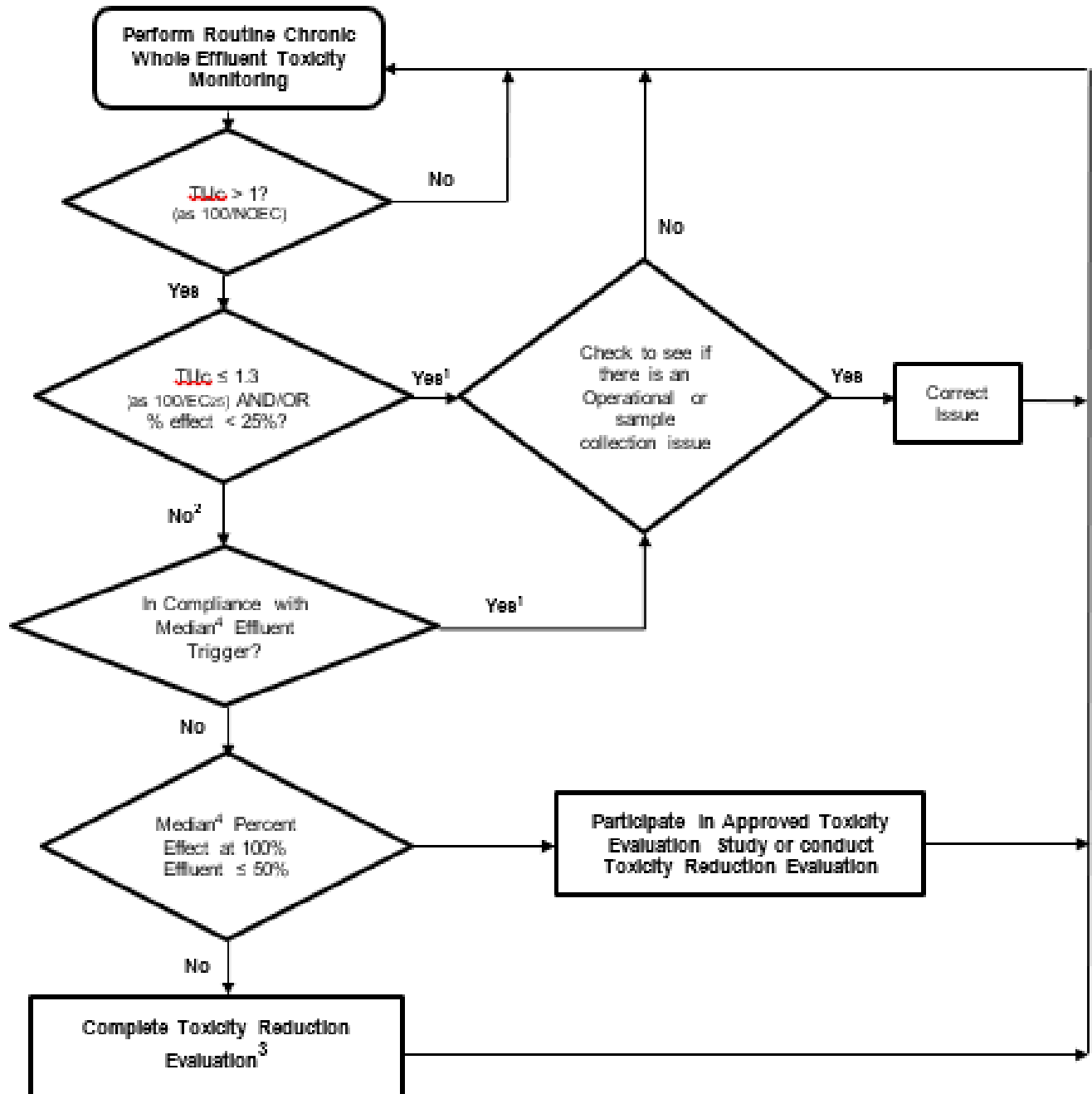


Figure F-3 Notes:

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. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.
- b. **Ultraviolet (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system for the Future Facility is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The NWRI guidelines include UV operating specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the Treatment Technology Report for Recycled Water, December 2009 (or a later version, as applicable) published by the

DDW. The UV system shall also conform to all requirements and operating specifications of the NWRI guidelines. A memorandum dated 1 November 2004 issued by DDW to Regional Water Board executive officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of lamp sleeves, as well as, include provisions that specify minimum delivered UV dose that must be maintained (per the NWRI Guidelines).

For granular media filtration, the NWRI Guidelines recommend a minimum hourly average UV dose of 100 mJ/cm². Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm² and a minimum hourly average UV transmittance of 55%, per the NWRI Guidelines. If the Discharger conducts a site-specific UV engineering study that demonstrates a lower UV dose meets a Title 22 equivalent virus removal, this Order may be reopened to revise the UV operating specifications accordingly.

- c. **Treatment Pond Operating Specifications.** Three treatment or storage ponds are utilized within the Facility: 1) the food processing wastewater storage and treatment pond, 2) the secondary effluent equalization pond, and 3) the secondary effluent storage pond. The food processing wastewater storage/treatment pond and the secondary effluent equalization pond are lined, but the secondary effluent storage pond is not lined. The operation and maintenance specifications for these ponds in this Order are necessary to protect the public and the beneficial uses of the groundwater, and to prevent nuisance conditions.

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

- a. Pretreatment Requirements.
 - i. 40 C.F.R. section 403.8(a) requires POTW's with a total design flow greater than 5 MGD and receiving pollutants that pass through or interfere with the operation of the POTW to establish a POTW Pretreatment Program. The Facility has a design flow greater than 5 MGD and, as identified in the ROWD, receives discharges from 2 non-categorical significant industrial users (SIU's), 2 categorical industrial users (CIU's), and 20 permitted non-significant industrial users. Therefore, the Discharger is required to implement a pretreatment program.
 - ii. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require POTW's to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants that will interfere with treatment plant operations or sludge disposal and prevent pass-through of pollutants that exceed water quality objectives, standards or permit limitations.

Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.

- iii. The Discharger shall continue to implement and enforce its approved pretreatment program, which is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or U.S. EPA may take enforcement actions against the Discharger as authorized by the CWA.
- b. **Resource Recovery from Anaerobically Digestible Material.** Managers of POTW's increasingly are considering the addition of organic material such as food waste, fats, oils and grease (FOG) into their anaerobic digesters for co-digestion. Benefits of accepting these materials include increasing the volume of methane and other biogases available for energy production and ensuring such materials are disposed of at the POTW instead of discharged into the collection system potentially causing sanitary sewer overflows. The State Water Board has been working with the California Department of Resources Recycling and Recovery (CalRecycle), the California Department of Food and Agriculture (CDFA), and the California Association of Sanitation Agencies (CASA) to delineate jurisdictional authority for the receipt of hauled-in anaerobically digestible material (ADM) at POTW's for co-digestion.

CalRecycle is proposing an exclusion from Process Facility/Transfer Station permits for direct injection of ADM to POTW anaerobic digesters for co-digestion that are regulated under waste discharge requirements or NPDES permits. The proposed CalRecycle exclusion is restricted to ADM that has been prescreened, slurried, and processed/conveyed in a closed system to be co-digested with regular POTW sludge. The CalRecycle exclusion assumes that a POTW has developed Standard Operating Procedures (SOP's) for the proper handling, processing, tracking, and management of the ADM received.

The Discharger currently does not accept hauled-in ADM for direct injection into its anaerobic digester for co-digestion. However, if the Discharger proposes to receive hauled-in ADM for injection into its anaerobic digester for co-digestion, this provision requires the Discharger to notify the Central Valley Water Board and develop and implement SOP's for this activity prior to initiation of the hauling. The requirements of the SOP's are discussed in Section VI.C.5.d.

- c. **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.

6. Compliance Schedules

- a. In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The State Water Board's Resolution 2008-0025 "*Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*" (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.
- b. In accordance with the Compliance Schedule Policy and 40 C.F.R. section 122.47, a discharger who seeks a compliance schedule must demonstrate additional time is necessary to implement actions to comply with a more stringent permit limitation. The Discharger must provide the following documentation as part of the application requirements:
 - i. Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;
 - ii. Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established;
 - iii. A proposed schedule for additional source control measures or waste treatment;

- iv. Data demonstrating current Facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;
 - v. The highest discharge quality that can reasonably be achieved until final compliance is attained;
 - vi. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and
 - vii. Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.
- c. Based on information submitted with the ROWD, SMR's, and other miscellaneous submittals, it has been demonstrated to the satisfaction of the Central Valley Water Board that the Discharger needs time to implement actions to comply with the final effluent limitations for methylmercury.
- i. **Methylmercury.** The Delta Mercury Control Program is composed of two phases. Phase 1 is currently underway and continues through the Phase 1 Delta Mercury Control Program Review. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetlands, and open-water habitats; and reducing total mercury loading to the San Francisco Bay, as required by the *Water Quality Control Plan for the San Francisco Bay*. As part of Phase 1, the CVCWA Coordinated Methylmercury Control Study Work Plan was approved by the Executive Officer on 7 November 2013. The final CVCWA Methylmercury Control Study was submitted to the Central Valley Water Board on 19 October 2018 and revised on 26 October 2018.

As part of Phase 1, the Delta Mercury Control Program also required dischargers to participate in a Mercury Exposure Reduction Program (MERP). The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The Discharger elected to provide financial support in a collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. An exposure reduction work plan for Executive Officer approval was submitted on 20 October 2013, which addressed the

MERP objective, elements, and the Discharger's coordination with other stakeholders.

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

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

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

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

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

Water Code section 13176, subdivision (a)(1) requires that laboratory analyses shall be performed by laboratories accredited by 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), BOD₅ (weekly), pH (continuous), TSS (weekly), electrical conductivity (monthly), and total dissolved solids (monthly) have been retained from Order R5-2015-0026.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2), effluent monitoring is required for all constituents with effluent limitations or discharge prohibitions. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for flow (continuous), BOD₅ (daily), pH (daily), TSS (daily), mercury (monthly), temperature (continuous), total dissolved solids (monthly), electrical conductivity (monthly), ammonia (weekly), nitrate (weekly), nitrite (weekly), and methylmercury (monthly) have

been retained from Order R5-2015-0026 to determine compliance with effluent limitations, where applicable, and characterize the effluent for these parameters.

3. This Order continues annual effluent monitoring requirements for chlorpyrifos and diazinon in order to determine compliance with the WQBEL's for these parameters based on the TMDL for chlorpyrifos and diazinon for Sacramento-San Joaquin Delta waterways.
4. As discussed in section IV.C.3 of this Fact Sheet, this Order establishes effluent limitations for nitrate plus nitrite as a single parameter. Therefore, in addition to monthly effluent monitoring requirements for nitrate and nitrite, this Order requires the Discharger to calculate the sum of nitrate and nitrite in the effluent weekly in order to determine compliance with the applicable effluent limitations for nitrate plus nitrite as a single parameter.
5. On 21 December 2018, U.S. EPA finalized updated NAWQC for aluminum in freshwater that reflect the latest science and allow for development of criteria reflecting the impact of local water chemistry on aluminum toxicity to aquatic life. The updated criteria account for the site-specific bioavailability of aluminum in receiving waters, which is dependent on pH, dissolved organic carbon, and hardness. This Order establishes monthly receiving water monitoring requirements for dissolved organic carbon at Monitoring Location EFF 001 in order to collect sufficient data for calculating aquatic life criteria for aluminum in accordance with the 2018 NAWQC. The Facility Modifications Project will result in significant changes to the secondary and tertiary treatment processes, which could result in changes to the effluent dissolved organic carbon characteristics. Therefore, routine monthly effluent monitoring for dissolved organic carbon is not required until operation of the Facility Modifications Project commences.
6. **Pyrethroid Pesticides Monitoring.** A Basin Plan Amendment and TMDL for the Control of Pyrethroid Pesticide Discharges in the Sacramento and San Joaquin River basins was approved by the Central Valley Water Board on 8 June 2017 and is now effective. The Pyrethroids Control Program requires monitoring by domestic and municipal wastewater dischargers discharging at least 1 MGD for the concentrations of pyrethroid pesticides, total and dissolved organic carbon in the water column, and water column toxicity testing. Monitoring is required to evaluate the discharge of pyrethroid pesticides to receiving waters impaired due to elevated concentrations.
7. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established is required. This Order requires monitoring monthly during the third year of the permit term in order to collect data to

conduct an RPA for the next permit renewal. See section IX.D of the MRP for more detailed requirements related to performing priority pollutant monitoring.

8. Water Code section 13176, subdivision (a), states: “The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of chapter 4 of part 1 of division 101 of the Health and Safety Code.” DDW accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA (Water Code Section 13370, subd. (c), 13372, 13377). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements (Wat. Code Section 13372, subd. (a)). The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. § 136.3(e), Table II). The Discharger maintains an ELAP accredited laboratory on-site and conducts analyses for chlorine residual, dissolved oxygen, and pH within the required 15-minute hold times.

C. Whole Effluent Toxicity Testing Requirements

1. Acute Toxicity. Order R5-2015-0026 required monthly 96-hour bioassay testing to demonstrate compliance with the effluent limitations for acute toxicity. This Order reduces the required testing frequency from monthly to quarterly. The Central Valley Water Board concludes this testing frequency is sufficient for evaluating compliance with the effluent limitations for acute toxicity.
2. Consistent with Order R5-2015-0026, chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

- a. Delta Regional Monitoring Program. The Central Valley Water Board requires individual dischargers and discharger groups to conduct monitoring of Delta waters and Delta tributary waters in the vicinity of their discharge, known as ambient (or receiving) water quality monitoring. This monitoring provides information on the impacts of waste discharges on Delta waters, and on the extant condition of the Delta waters. However, the equivalent funds spent on current monitoring efforts could be used more efficiently and productively and provide a better understanding of geographic and temporal distributions of contaminants and physical conditions in the Delta, and of other Delta water quality issues, if those funds were used for a coordinated ambient monitoring effort, rather than

continue to be used in individual, uncoordinated ambient water quality monitoring programs. The Delta Regional Monitoring Program will provide data to better inform management and policy decisions regarding the Delta.

The Discharger is required to participate in the Delta Regional Monitoring Program. Delta Regional Monitoring Program data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Order. Delta Regional Monitoring Program monitoring stations are established generally as “integrator sites” to evaluate the combined impacts on water quality of multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data may be used to help establish background receiving water quality for an RPA in an NPDES permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger’s discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

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

- b. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- c. Receiving water monitoring requirements at Monitoring Locations RSW-001 and RSW-002 have been retained from Order R5-2015-0026 for dissolved oxygen (twice per month), pH (twice per month), temperature (twice per month), hardness (quarterly), turbidity (twice per month), and electrical conductivity (twice per month).

- d. Monthly receiving water monitoring for ammonia at Monitoring Locations RSW-001 and RSW-002 has been included to evaluate compliance with the applicable water quality criteria for ammonia.
- e. On 21 December 2018, U.S. EPA finalized updated NAWQC for aluminum in freshwater that reflect the latest science and allow for development of criteria reflecting the impact of local water chemistry on aluminum toxicity to aquatic life. The updated criteria account for the site-specific bioavailability of aluminum in receiving waters, which is dependent on pH, dissolved organic carbon, and hardness. This Order establishes quarterly receiving water monitoring requirements for dissolved organic carbon at Monitoring Locations RSW-001 and RSW-002 in order to collect sufficient data for calculating aquatic life criteria for aluminum in accordance with the 2018 NAWQC.
- f. Receiving water monitoring requirements for TDS has been discontinued at Monitoring Locations RSW-001 and RSW-002. EC monitoring is sufficient to evaluate compliance with the Bay-Delta Plan salinity objectives.
- g. Receiving water monitoring requirements at Monitoring Location RSW-003 have been retained from Order R5-2015-0026 for flow (continuous).
- h. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires receiving water monitoring for priority pollutants and other constituents of concern bi-monthly between 1 April 2022 and 31 March 2023 at Monitoring Location RSW-001 and has added Monitoring Location RSW-002 in the event that it is the upstream monitoring location at the time of sampling, in order to collect data to conduct an RPA for the next permit renewal.

2. Groundwater

- a. Groundwater monitoring is required to collect data on the characteristics of the groundwater and to assess compliance with limitations. The monitoring frequencies for depth to groundwater (quarterly), groundwater elevation (quarterly), gradient magnitude (quarterly), gradient direction (quarterly), pH (quarterly), total dissolved solids (quarterly), fixed dissolved solids (quarterly), electrical conductivity (quarterly), chloride (quarterly), sodium (quarterly), boron (quarterly), ammonia (quarterly), nitrate (quarterly), nitrite (quarterly), total coliform organisms (quarterly), total iron (quarterly), and total manganese (quarterly) have been retained from Order R5-2015-0026.

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. UV Disinfection System Monitoring

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by the DDW), and the NWRI, Guidelines

3. Treatment Pond Monitoring

Treatment pond monitoring is required to ensure compliance with the pond operating requirements contained in the Special Provision, section VI.C.4.a, of this Order.

4. Land Discharge Monitoring

Land discharge monitoring is required to ensure that the discharge to the land disposal area complies with the Storage Pond and Land Disposal Operating Requirements in section VI.C.4 of this Order.

5. 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 City of Manteca Wastewater 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 posting on the Central Valley Water Board's website on **29 October 2020** and through posting by the Discharger at the Manteca City Hall on **2 November 2020** and the Facility entrance on **29 October 2020**.

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 **27 November 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 February 2021**

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

Location: Online

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

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

[Instructions on how to file a petition for review](#)

(http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instructions.shtml) 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 Sarah Thompson at (916) 464-4713 or sarah.thompson@waterboards.ca.gov.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Abbreviations used in this table:

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

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

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	16	4,200	130	370 (see table note 1. below)	130 (see table note 2. below)	--	--	--	--	No (see table note 3. below)
Ammonia Nitrogen, Total (as N)	mg/L	4.3	0.13	1.53	5.45 (see table note 1. below)	1.48 (see table note 2. below)	--	--	--	--	Yes (see table note 3. below)
Chloride	mg/L	120	77.7	230	860 (see table note 1. below)	230 (see table note 4. below)	--	--	--	250	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Diazinon	µg/L	<0.006	<0.03	0.10	--	--	--	--	0.10	--	No(see table note 3. below)
Electrical Conductivity @ 25°C	µmhos/cm	817 (see table note 5. below)	213 (see table note 5. below)	1600	--	--	--	--	--	1600	No (see table note 3. below)
Nitrate, Total (as N)	mg/L	10	1.5	10	--	--	--	--	--	10	Yes (see table note 3. below)
Nitrite, Total (as N)	mg/L	1.5	0.03	1.0	--	--	--	--	--	1.0	Yes (see table note 3. below)

Table Notes:

- (1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1 hour average.
- (2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30 day average.
- (3) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.
- (4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4 day average.
- (5) Represents the maximum observed annual average concentration for comparison with the Secondary MCL or Sport Fish Water Quality Objective for mercury, where applicable.
- (6) State Water Board Sport Fish Water Quality Objective for mercury.
- (7) Constituents with a Total Maximum Daily Load (TMDL).

ATTACHMENT H – CALCULATION OF WQBEL’S

Abbreviations used in this table:

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

HUMAN HEALTH WQBEL’S CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Nitrate plus Nitrite, Total (as N)	mg/L	10	1.5	0.32	--	1.53	1.28	10	--	15.3

Table Notes:

- (1) Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.
- (2) AWEL/AMEL multiplier used to calculate the AWEL for nitrate plus nitrite.

ATTACHMENT H – CALCULATION OF WQBEL’S

Abbreviations used in the following table:

- B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
- CMC = Criterion Maximum Concentration (CTR or NTR) Criteria
- CCC = Criterion Continuous Concentration (CTR or NTR) Criteria
- CV = Coefficient of Variation (established in accordance with section 1.4 of the SIP)
- DF = Dilution Factor
- ECA = Effluent Concentration Allowance
- Eff = Effluent
- LTA = Aquatic Life Calculations – Long-Term Average
- Mult = Multiplier
- 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	CCC	B	Eff CV	CMC DF	CCC DF	ECA Mult _{acute}	LTA _{acute}	ECA Mult _{chronic}	LTA _{chronic}	AMEL Mult ₉₅	AWEL Mult	MDEL Mult ₉₉	AMEL	AWEL	MDEL
Ammonia Nitrogen, Total (as N) (1 Apr – 30 Nov)	mg/L	5.45	1.48	0.13	1.32	--	--	0.16	0.87	0.59	0.88	2.24	4.75	--	2.0	4.2	--
Ammonia Nitrogen, Total (as N) (1 Dec – 31 Mar)	mg/L	13.3	2.68	0.13	0.74	--	--	0.27	3.55	0.74	1.98	1.24	3.13	--	2.5	6.2	--
Chlorpyrifos	µg/L	0.03	0.02	--	--	0.32	0.01	0.53	0.01	1.55	2.68	--	0.01	0.02	--	0.03	0.02
Diazinon	µg/L	0.16	0.10	--	--	0.32	0.05	0.53	0.05	1.55	2.68	--	0.08	0.14	--	0.16	0.10

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.