CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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ORDER R5-2015-XXXX
NPDES NO. CA0081558

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF MANTECA AND DUTRA FARMS, INC. 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 and Dutra Farms, Inc.
Name of Facility	Wastewater Quality Control Facility
Facility Address	2450 West Yosemite Avenue
	Manteca, CA 95337
	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:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**[Choose: 180 days prior to the Order expiration date OR <insert date>]**
The U.S. 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, Pamela Creedon, 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 17 April, 2015

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

Information describing the City of Manteca and Dutra Farms, Inc. (collectively the 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 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. 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.

C. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, and V.B are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

D. 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.

E. Notification of Interested Parties. 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.

F. 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 R5-2009-0095 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 past 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. The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

E. Discharge or application of waste classified as 'hazardous', as defined in California Code of Regulations, Title 23, Section 2521(a), or 'designated', as defined in Water Code section 13173, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	820	1,200	1,700	--	--
	lbs/day[2]	1,500	2,200	3,000	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	820	1,200	1,700	--	--
	lbs/day[2]	1,500	2,200	3,000	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N) (1 April - 30 November)	mg/L	2.1	4.4	--	--	--
	lbs/day[1]	170	360	--	--	--
	lbs/day[2]	310	640	--		
Ammonia Nitrogen, Total (as N) (1 December - 31 March)	mg/L	2.6	4.7	--	--	--
	lbs/day[1]	210	390	--	--	--
	lbs/day[2]	380	690	--	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	15.3	--	--	--

[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. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent.

c. **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.

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

e. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

f. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

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

g. **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).

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**

$$S_{AMEL} = \frac{C_{D\ M-AVG}}{0.08} + \frac{C_{C\ M-AVG}}{0.012} \leq 1.0$$

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

ii. **Average Weekly Effluent Limitation**

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

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

i. **Electrical Conductivity @ 25°C.** The effluent calendar year annual average electrical conductivity concentration shall not exceed 1,000 µmhos/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 through 30 December 2030, the effluent calendar year annual total mercury load 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 Application Area Specifications

The Discharger shall maintain compliance with the following land application area specifications when applying recycled water[1] to the City owned land application agricultural fields and Dutra Farms Inc. field shown in Figure B-2 (Attachment B). 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

[1] Recycled water for this Facility contains undesinfected secondary municipal wastewater and food processing wastewater from Eckert Cold Stotage. The Recycling General Order regulates only non-potable uses of domestic wastewater not food processing wastewater.

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. **BOD_5 Loading Rate.** The maximum daily mass of BOD_5 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 concentrations 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. All applied irrigation water must infiltrate completely within 48 hours.
    b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.
    c. Low-pressure and un-pressurized pipelines and ditches, which are accessible to mosquitoes, shall not be used to store reclaimed water.
11. Land discharge of effluent shall comply with the following setback requirements:

Table 5. Land Application Area Setback Requirements

Setback Definition[1]	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	50
Edge of land application area to a manmade or natural surface water drainage course[2] or spring	25

[1] As defined by the wetted area produced during irrigation.
[2] Excluding ditches used exclusively for tailwater return.

C. Title 22 Recycling Specifications

1. For the purpose of this Order, “use area" means an area with defined boundaries where recycled water is used or discharged.
2. 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).
3. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities, and these shall be of a type, or secured in a manner, that permits operation by authorized personnel only.
4. **Recycled Water for Spray Irrigation of Land Application Areas.** Recycled water shall be at least Undisinfected Secondary Treated Effluent as defined in Title 22, section 60301, and shall comply with the following specifications:
   a. Use shall be limited to surface irrigation of fodder, fiber, and/or feed crops;
   b. 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.
   c. Grazing of milking animals within the use areas is prohibited.
   d. Irrigation of the use areas shall occur only when appropriately trained personnel are on duty;
   e. Use areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.
5. **Recycled Water for Construction Purposes and Dust Control**. Recycled water shall be at least Disinfected Tertiary-level Treated Effluent as defined in Title 22, section 60301, and shall comply with the following specifications:
   a. Use shall be limited for construction purposes and dust control;
   b. Notwithstanding the following requirements, the production, distribution, and use of recycled water shall conform to the June 2008 Engineering Report prepared for the City of Manteca by Nolte Engineering pursuant to Title 22, section 60323 and approved by the Division of Drinking Water (formerly Department of Public Health) on 2 September 2008.
   c. Signs shall be placed at the recycled water pump stations and shall be no less than 4 inches high and 8 inches wide with the wording: “**RECYCLED WATER – DO NOT DRINK**” displayed with the internation “Do Not Drink” symbol;
   d. No recycled water shall be applied within 100 feet of any water supply well;
   e. Any runoff shall be confined to the recycled water use area;
   f. Spray, mist, or runoff resulting from the use of recycled water at the project site shall be prevented from entering dwellings, designated outdoor eating areas, or food handling facilities in proximity to the intended recycled water application area;
   g. Presonnel involved in transporting or using recycled water shall be informed of possible health hazards that may result from contact and use of recycled water. Supervisors must be appointed for the recycled water use areas and their staff must be trained on the hazards of working with recycled water and periodically retrained. The Site Supervisor shall be responsible for all site supervision issues, including responsibilities for most inspections, enforcement of rules, employee health and

safety, and implementation and enforcement of the cross connection control program applicable to the use area;

h. The turbidity of the filter effluent measured at 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.

i. The total coliform organisms in the effluent measured at REC-001 shall not exceed:

i. 2.2 most probable number (MPN) per 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.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

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

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen.** The dissolved oxygen concentration to be reduced below 5.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **Pesticides:**

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

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

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

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

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

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

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

10. **Radioactivity:**

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

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

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

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

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

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

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

    a. The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.

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

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

17. **Turbidity:**

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

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

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

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

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

B. Groundwater Limitations

1. Release of waste constituents from any portion of the Facility shall not cause groundwater to:

   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 Limitation	
		Water Quality Objective	Ambient Background Quality[1]
Total Coliform Organisms	MPN/100 mL	<2.2	<2
Total Dissolved Solids[2]	mg/L	1070	280
Nitrate Nitrogen, Total (as N) **(Effective 1 April 2020)** [4]	mg/L	10	15.3

[1] Background threshold values based on statistical calculation of representative upgradient monitoring well(s).
[2] A cumulative impact limit that accounts for seve ral dissolved constituents in addition to those listed here separately (e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium).
[3] The water quality objectives for total dissolved solids are based on the site-specific study performed by the Discharger and submitted in October 2012. This Order requires compliance with the Nitrate Nitrogen, Total (as N) final groundwater limitations by 1 April 2020.

   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 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

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

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

ii. Controls any pollutant limited in the Order.

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

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

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

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

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

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 (POTW) 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. For POTW's, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).

o. 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.

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

p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other

enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

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

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

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

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

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

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

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

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on 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 WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

g. **Ultraviolet Light (UV) Disinfection Operating Specifications.** The UV operating specifications in this Order are based on the UV guidelines developed by the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWARF) 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. **Bay-Delta Plan South Delta Salinity Objectives Update.** The State Water Board is currently in the process of updating the South Delta Salinity Objectives contained in the Bay-Delta Plan. The updated salinity objectives may result in needed changes to the salinity requirements of this Order. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with changes to the Bay-Delta Plan.

i. **Dilution Credits/Mixing Zones for Ammonia.** If the Discharger conducts a dilution/mixing zone study demonstrating that dilution credits and mixing zones for aquatic life criteria for ammonia comply with the requirements of Section 1.4.2 of the SIP, this Order may be reopened to adjust effluent limitations based on allowable dilution credits/mixing zones for ammonia.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation Requirements.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP section V. Furthermore, 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 numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is >1 TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iii. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14-days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four chronic toxicity tests conducted once every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) 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 continue accelerated monitoring until four consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

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

(2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

(3) A schedule for these actions.

b. **Phase 1 Methylmercury Control Study.** In accordance with the Basin Plan's Delta Mercury Control Program and the compliance schedule included in this Order for methylmercury (Section VI.C.7.a), the Discharger shall continue to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study) to evaluate existing control methods and, as needed, develop

additional control methods that could be implemented to achieve the methylmercury waste load allocation. A work plan was submitted by CVCWA on **20 April 2013**. The study work plan will be reviewed by a Technical Advisory Committee (TAC) and approved by the Executive Officer. The work plan shall be implemented immediately after approval by the Executive Officer, and a progress report shall be submitted by **20 October 2015**.

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges.

The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness, costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted to the Central Valley Water Board by **20 October 2018**.

The Executive Officer may, after public notice, extend the due date up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

3. Best Management Practices and Pollution Prevention

a. **Pollution Prevention Plan for Mercury.** The Discharger shall continue to implement a PPP for mercury in accordance with Water Code section 13263.3(d)(3), per the compliance schedule in this Order for methylmercury (section VI.C.7.a). Progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1). The progress reports shall discuss the effectiveness of the PPP in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the PPP.

b. **Mercury Exposure Reduction Program.** The Discharger shall participate in a Mercury Exposure Reduction Program (MERP) in accordance with the Basin Plan's Delta Mercury Control Program. The Discharger elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the MERP objective, elements, and the Discharger's coordination with other stakeholders. The minimum requirements for the exposure reduction work plan are outlined in the Fact Sheet (Attachment F, section VI.B.3.b). The Discharger shall integrate or, at minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. The Discharger shall continue to participate in the group effort to implement the work plan.

c. **Pollution Prevention Plan for Electrical Conductivity.** The Discharger shall continue to implement a PPP for electrical conductivity in accordance with Water Code section 13263.3(d)(3). The PPP shall be updated as necessary to provide salinity source control measures to minimize the discharge of salinity to the Delta. Any updates of the PPP shall be submitted to the Central Valley Water Board within 30 days of the update. The minimum requirements for the PPP are outlined in the Fact Sheet (Attachment F, section VI.B.3.a). Progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

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 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 Light (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 Monitoring Location 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. **Pond Operating Requirements (PND-001, PND-002, and PND-003)**

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 aver age 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 Municipal Facilities (POTW's Only)

a. **Pretreatment Requirements**

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. part 403, including any subsequent regulatory revisions to 40 C.F.R. part 403. Where 40 C.F.R. part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 C.F.R. part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a 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 C.F.R. section 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. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. EPA Regional Administrator at least **90 days** in advance of the change.

v. **Within 180 days of the permit effective date,** the Discharger shall submit a biosolids use or disposal plan to the Central Valley Water Board. The plan shall describe at a minimum:

(a) Sources and amounts of biosolids generated annually.

(b) Location(s) of on-site storage and description of the containment area.

(c) Plans for ultimate disposal. For landfill disposal, include the present classification of the landfill; and the name and location of the landfill.

c. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, Statewide General WDR's for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDR's. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

d. **Anaerobically Digestible Material.** If the Discharger proposes to receive hauled-in anaerobically digestible material for injection into an anaerobic digester for co-digestion, the Discharger shall notify the Central Valley Water Board and develop and implement standard operating procedures (SOP's) for this activity prior to initiation of the hauling. The SOP's shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the SOP's 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 provide training to its staff on the SOP's and shall maintain records for a minimum of three years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of three years for the disposition, location, and quantity of accumulated pre-digestion-segregated solid waste hauled off-site.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** For discharges to the San Joaquin River, 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.

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. **Effluent and Receiving Water Limitation Compliance.** The discharge shall demonstrate compliance with Effluent Limitations IV.A.1 and Receiving Water Limitations V.A of this Order.

ii. **Facility Expansion.** The Discharger shall have complected 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*).

iii. **Request for Increase.** 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 following time schedule to ensure compliance with the final effluent limitations:

Task	Date Due
Phase 1	
i. Submit CVCWA Coordinated Methylmercury Control Study Work Plan	**Complete**
ii. Update and Implement Pollution Prevention Plan (PPP)[1] for Mercury (per Section VI.C.3.a)	**Within 9 months** of the effective date of this Order
iii. Implement CVCWA Coordinated Methylmercury Control Study Work Plan	**Immediately following Executive Officer Approval**
iv. Annual Progress Reports[2]	**30 January, annually**
v. Submit CVCWA Coordinated Methylmercury Control Study Progress Report	**20 October 2015**
vi. Submit Final CVCWA Coordinated Methylmercury Control Study	**20 October 2018**[3]
Phase 2	
vii. Implement methylmercury control programs	**TBD**[4]
viii. Full Compliance	**31 December 2030**[3]

1. The PPP for mercury shall be implemented in accordance with Section VI.C.3.a.
2. Beginning **30 January 2016** and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including a summary of total mercury and methylmercury monitoring results.

3. The Executive Officer may, after public notice, extend the due date for the Final CVCWA Coordinated Methylmercury Control Study up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.
4. To be determined. Following Phase 1 the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations, final compliance date, etc. Consequently, the start of Phase 2 and the final compliance date is uncertain at the time this Order was adopted.

VII. COMPLIANCE DETERMINATION

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

B. Total Mercury Mass Loading Effluent Limitations (Section IV.A.2.a). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.
2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. 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 Limitations (Section IV.A.1.g). 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 effluent limitations 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.f). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.

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:.

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

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

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. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
   b. A sample result is reported as 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 <u>not</u> be deemed out of compliance.

G. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.e). Compliance with the accelerated monitoring and TRE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

H. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.h). Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as “non-detectable” concentrations to be considered to be zero.

I. Temperature Effluent Limitation (Section IV.A.1.d). Compliance with the final effluent limitations for temperature shall be ascertained using the average of effluent monitoring results measured continuously at Monitoring Location EFF-001 during the 24-hour period starting at 12:00 a.m. measured on the same day of the receiving water monitoring results and the daily average temperature of the receiving water measured at Monitoring Location RSW-001.

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

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

ATTACHMENT A – DEFINITIONS

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

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

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

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

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

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

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

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

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

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

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

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

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.

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

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

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

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

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

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 concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

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

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

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.

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 step-wise 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. Facility Map

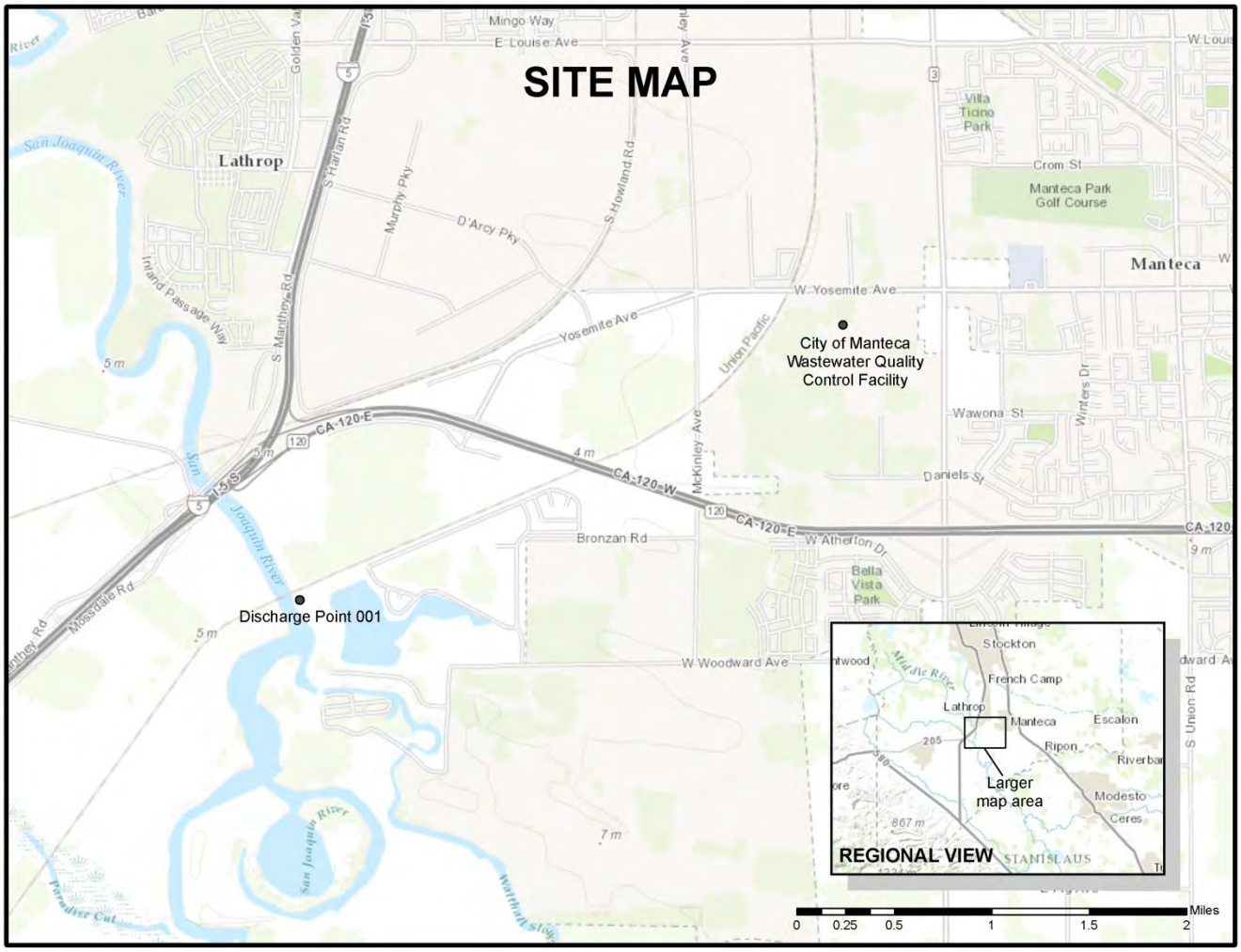


Figure B-2. Map of Agricultural Fields

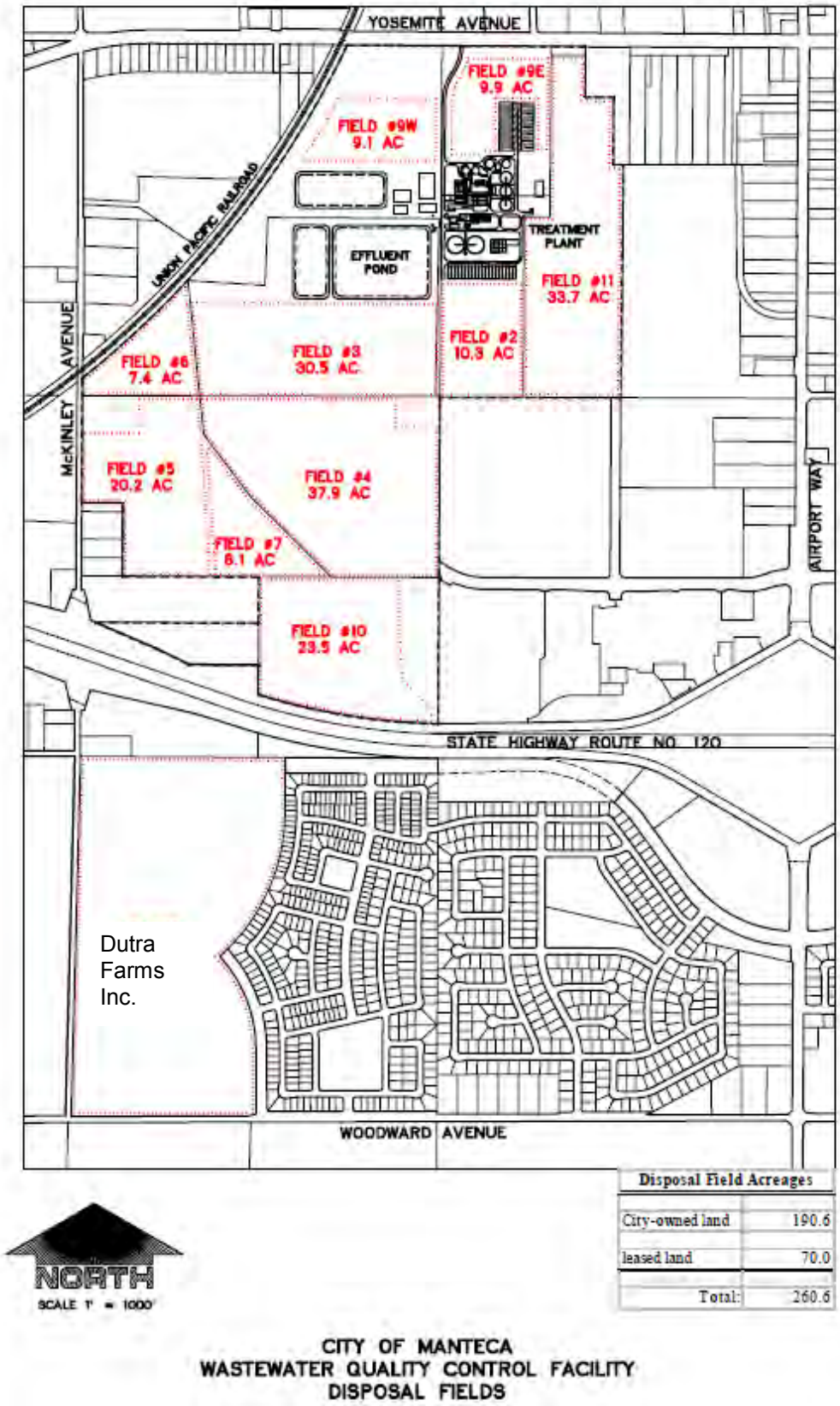


Figure B-3. Map Including Monitoring Locations

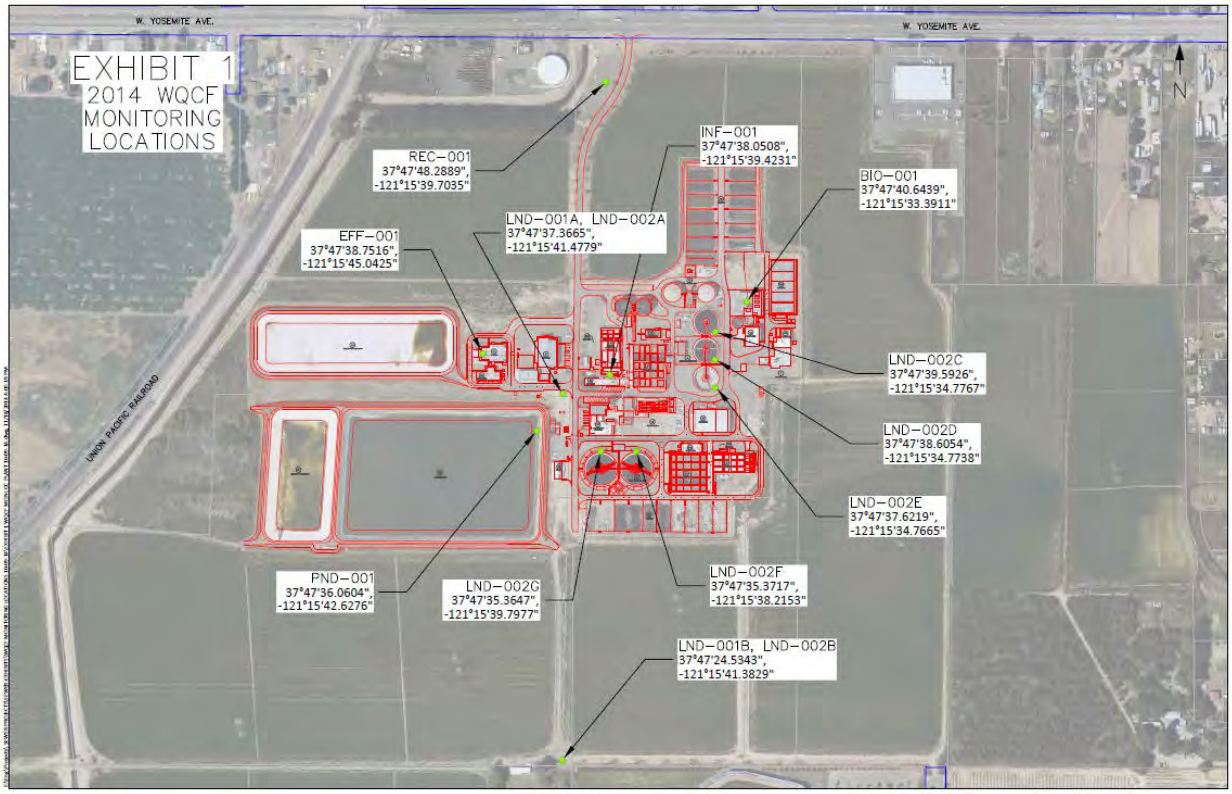


Figure B-4. Map Including Receving Water Monitoring Locations

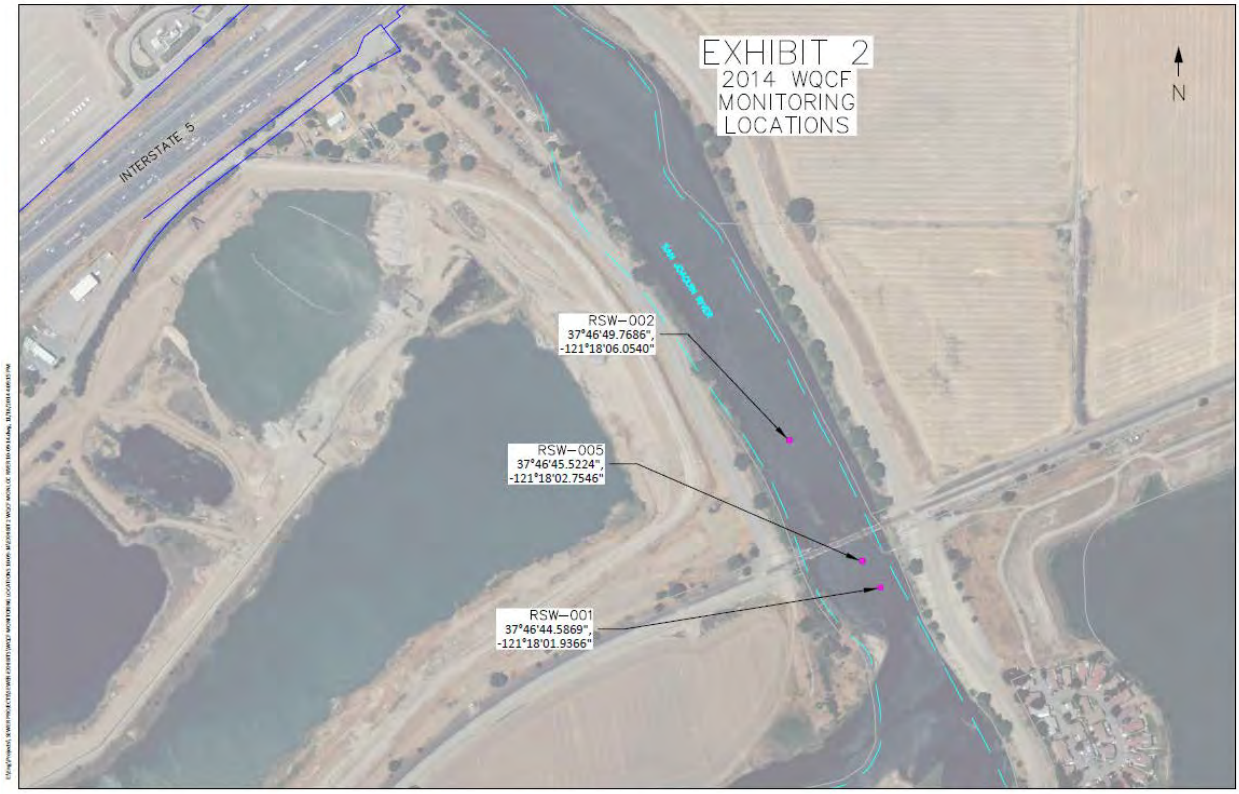


Figure B-5. Map Including Groundwater Wells Monitoring Locations

ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Flow Schematic for Existing Facility

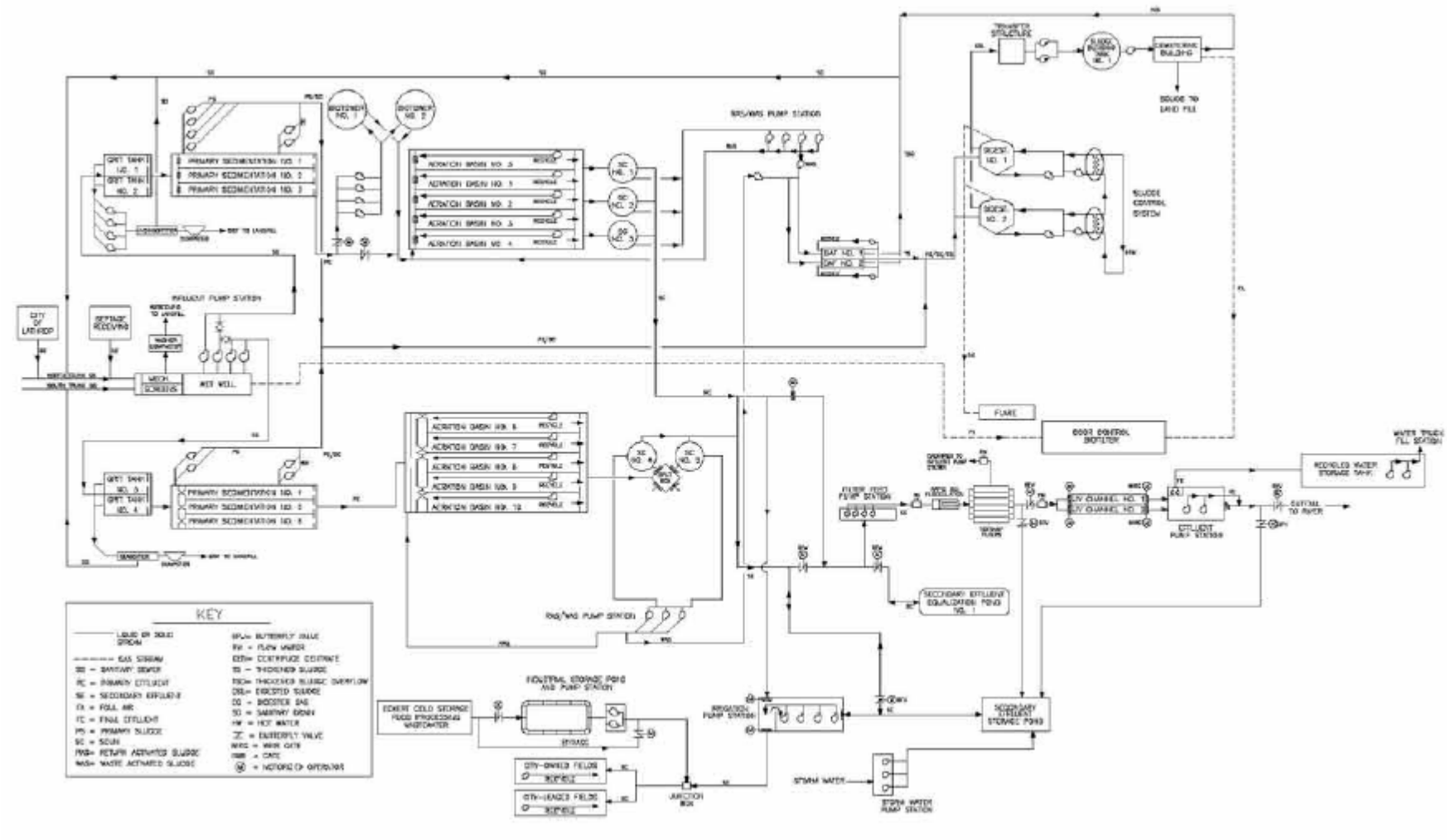
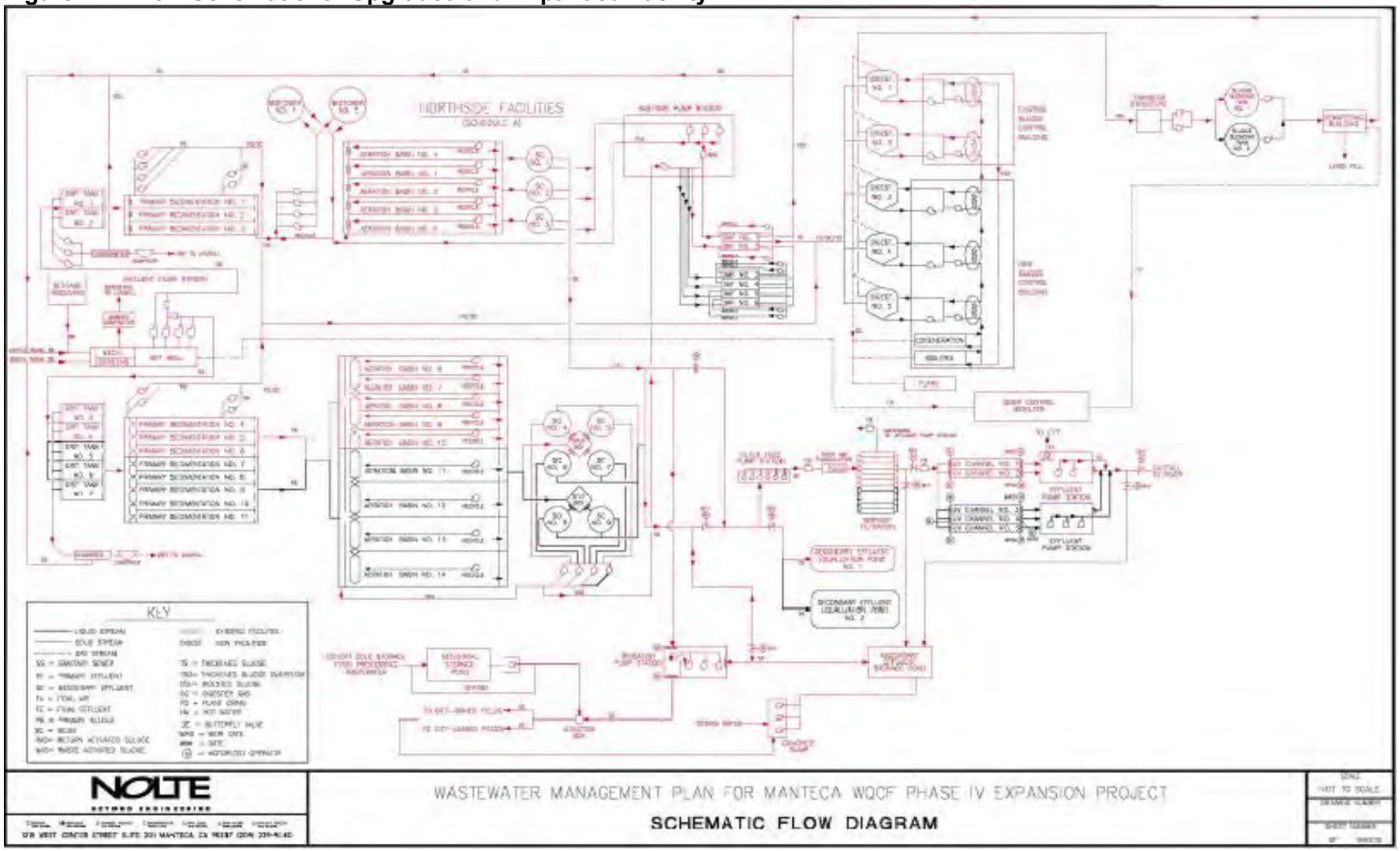


Figure C-2. Flow Schematic for Upgraded and Expanded Facility



TENTATIVE

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. § 122.41(a); Wat. Code, §§ 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 and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA 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. § 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. § 122.41(c).)

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes 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. § 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. § 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. § 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. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, § 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 § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 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. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 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 § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, § 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 § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 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. § 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. § 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. § 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. § 122.41(m)(4)(i)):
   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 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. § 122.41(m)(4)(i)(B)); and
   c. The Discharger submitted notice to the Central Valley Water Boardas required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 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. § 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 a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 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. § 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. § 122.41(n)(2).)

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

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

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 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. § 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. § 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. § 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. § 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. § 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. § 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. § 122.41(j)(1).)

B. Monitoring results 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. In the case of pollutants for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants. (40 C.F.R. § 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. § 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. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 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. § 122.41(h); Wat. Code, §§ 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, and V.B.5 below. (40 C.F.R. § 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. § 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. § 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. § 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. § 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. § 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. § 122.22(d).)

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. § 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 results of monitoring of sludge use or disposal practices. (40 C.F.R. § 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. § 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. § 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. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that 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 written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission 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. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

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. § 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. § 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. § 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.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board or State 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. § 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. (40 C.F.R. § 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. § 122.41(l)(8).)

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. § 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. § 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. § 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. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 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. 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 certified for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.

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

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

F. Laboratories analyzing monitoring samples shall be certified by DDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

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

State Water Resources Control Board Quality Assurance Program Officer
Office of Information Management and Analysis
State Water Resources Control Board
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 used for construction purposes can be obtained prior to distribution to the Discharger’s clients.
--	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-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-10	Compliance groundwater monitoring well located in land-application agricultural Field 10.
--	MW-11	Compliance groundwater monitoring well located in land-application agricultural Field 11.
--	MW-BG	Background groundwater monitoring well located on Airport Way, upgradient and approximately 1,200 feet east of the agricultural fields.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	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.
--	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.

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/Day	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Day	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab[3]	1/Month	[2]
Total Dissolved Solids	mg/L	Grab[3]	1/Month	[1]

[1] 24-hour flow proportional composite.

[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136; or by methods approved by the Central Valley Water Board or the State Water Board.

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

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/Day	[2]
	lbs/day	Calculate	1/Day	--
pH	standard units	Grab	1/Day[3,4]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Day	[2]
	lbs/day	Calculate	1/Day	--
Priority Pollutants				
Bis (2-ethylhexyl) Phthalate	µg/L	Grab	1/Month[5]	[2,6,7]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[2,6,8]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,9]	[2]
	lbs/day	Calculate	1/Week	--
Dissolved Oxygen	mg/L	Grab	2/Month	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter[10]	[2]
Mercury (methyl)	ng/L	Grab	1/Month	[2,8]
Nitrate plus Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Week[11]	[2]
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Week[11]	[2]
Temperature	°C	Meter	Continuous[3,4]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	1/Day[12]	[2]
Total Dissolved Solids	mg/L	Grab	1/Month	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[3] pH and temperature shall be recorded at the time of ammonia sample collection.
[4] A hand-held field meter may be used, 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.
[5] Monitoring shall be conducted twice per month for the first year following the permit effective date and then monthly thereafter.
[6] 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.D).
[7] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
[8] Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a reporting limit of 0.05 ng/L for methylmercury and 0.5 ng/L for total mercury.
[9] Concurrent with whole effluent toxicity monitoring.
[10] Hardness samples shall be collected concurrently with metals samples.
[11] Monitoring for nitrite and nitrate shall be conducted concurrently.
[12] Samples for total coliform organisms may be collected at any point following disinfection.

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 following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform monthly 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 grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.
3. *Test Species* – Test species shall be fathead minnows (*Pimephales promelas*).
4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency –* The Discharger shall perform quarterly three species chronic toxicity testing.
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, 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:
   a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   c. The green alga, *Selenastrum capricornutum* (growth test).
5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition,* EPA/821-R-02-013, October 2002.
6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. *Dilutions* – For routine and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in the table 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

Sample	Dilutions[a] (%)					Control
	100	**75**	**50**	**25**	**12.5**	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

[a] Receiving water control or laboratory water control may be used as the diluent.

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the

monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

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.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board within 30 days following completion of the test, and shall contain, at minimum:

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

   b. The statistical methods used to calculate endpoints;

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

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

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

   Additionally, the monthly discharger 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 frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

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 TRE's shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.

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

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

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

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

VI. LAND APPLICATION AREA MONITORING REQUIREMENTS

A. Wastewater Monitoring

1. The Discharger shall monitor the wastewaters applied to the Land Application Areas at Monitoring Location LND-001 as follows. Sampling is not required during periods when wastewater is not applied to the agricultural fields.

Table E-5. Land Application Area Wastewater Monitoring Requirements

Parameter	Units	Sample Type	Sampling Frequency[1]	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 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.

Table E-6. Land Application Area Monitoring Requirements

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Precipitation	0.1 inches	Rain gauge[1]	1/Day	Monthly
Hydraulic Loading Rate	in	Calculated[2]	1/Day	Monthly Annually
BOD_5 loading rate as an irrigation cycle average	lb/ac/day	Calculated[3]	1/Day	Monthly
Total nitrogen loading rate	lb/ac	Calculated[4]	1/Week	Monthly Annually
Calendar Annual Average Total Dissolved Solids	mg/L	Calculated[5]	1/Week	Annually

[1] Data obtained from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable.

[2] 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.

[3] BOD_5 Loading Rate shall be calculated for each LAA field. BOD_5 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 BOD_5 results for the wastewater, and the number of days per irrigation cycle.

[4] 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.).

[5] 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; and
   m. Evidence of fly and/or mosquito breeding.
   n. Temperature, wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made, including fresh water flushing of the force main and head ditches. A copy of entries made in the log during each month shall be submitted as part of the monthly self-monitoring report.

VII. TITLE 22 RECYCLING MONITORING REQUIREMENTS

A. Monitoring Location REC-001

1. The Discharger shall monitor disinfected tertiary-level treated effluent when supplied to clients for construction purposes as follows:

Table E-7. Title 22 Recycling Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Flow	GPD	Meter[1]	Continuous	Annually[3]
Total Coliform Organisms	MPN/100 mL	Grab[1]	1/Day	Annually[3]
Turbidity	NTU	Meter[2]	Continuous	Annually[3]
Recycled Water Users	--	--	--	Annually[3]
Recycled Water Volume	Gallons	Meter[1]	Monthly	Annually[3]
Soil Saturation/Ponding	--	Observation	Quarterly	Annually[3]
Nuisance Odors/Vectors	--	Observation	Quarterly	Annually[3]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Discharge Off-Site	--	Observation	Quarterly	Annually[3]
Notification Signs	--	Observation	Quarterly	Annually[3]

[1] Monitoring tobe conducted at Monitoring Location REC-001.
[2] Monitoring to be conducted at FIL-001.
[3] To be submitted with the Water Recycling Annual Report per section X.D.8.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall implement the Receiving Water Monitoring Requirements in Attachment E, Sections VIII.A.1 and VIII.A.2 of this Order. However, the Central Valley Water Board hereby authorizes the Discharger to participate in the Delta Regional Monitoring Program in lieu of conducting the individual monitoring specified in Attachment E, Sections VIII.A.1 and VIII.A.2 of this Order (including visual observations). The Discharger may choose to conduct all or part of the receiving water monitoring through the Delta Regional Monitoring Program, as approved by the Executive Officer. If the Discharger elects to cease all or part of the individual receiving water monitoring and instead participates in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative informing the Board that the Discharger will participate in the Delta Regional Monitoring Program, and the date on which individual receiving water monitoring required under Attachment E, Sections VIII.A.1 and VIII.A.2 will cease, or be modified, and specific monitoring locations and constituent combinations that will no longer be conducted individually. To ensure consistency with this Order, discontinuing part or all of individual receiving water monitoring requires the Executive Officer's prior written approval of the Discharger's request. However, approval by the Executive Officer is not required prior to participating in the Delta Regional Monitoring Program.

If the Discharger participates in the Delta Regional Monitoring Program in lieu of conducting individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta Regional Monitoring Program will cease and individual monitoring is reinstituted. After receiving written approval from the Executive Officer, receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2 is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. If the Discharger fails to adequately support the Delta Regional Monitoring Program, as defined by the Delta Regional Monitoring Program Steering Committee, the Discharger shall reinstitute individual receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2 upon written notice from the Executive Officer. During participation in the Delta Regional Monitoring Program, the Discharger may conduct and submit any or part of the receiving water monitoring included in this Monitoring and Reporting Program that is deemed appropriate by the Discharger.

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

temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

During the period of participation in the Delta Regional Monitoring Program, the Discharger shall continue to report any individually conducted receiving water monitoring data in the Electronic Self-Monitoring Reports (eSMR) according to the Monitoring and Reporting Program. In addition, 1) with each submitted eSMR, the Discharger's eSMR cover letter shall state that the Discharger is participating in the Delta Regional Monitoring Program in lieu of conducting the individual receiving water monitoring program required by the permit, and 2) with each annual report, the Discharger shall attach a copy of the letter originally submitted to the Central Valley Water Board describing the monitoring location(s) and constituent combinations that will no longer be conducted individually.

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

1. The Discharger shall monitor the San Joaquin River at Monitoring Locations RSW-001, RSW-002, and RSW-003 as follows:

Table E-8. Receiving Water Monitoring Requirements – Monitoring Locations RSW-001, RSW-002, and RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab	1/2 Weeks[4]	[1]
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/2 Weeks[4]	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/2 Weeks[4]	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter[3,4]	[1]
Temperature	°F	Grab	1/2 Weeks[4]	[1]
Total Dissolved Solids	mg/L	Grab	1/Quarter[4]	[1]
Turbidity	NTU	Grab	1/2 Weeks[4]	[1]
Flow	cfs	Meter	Continuous[5]	--
Direction of Flow	--	Meter	Continous[5]	--

[1] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[2] 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.D).
[3] Samples shall be monitored on the same day as effluent monitoring samples.
[4] Monitoring at RSW-001 and RSW-002, only.
[5] Monitoring at RSW-003, only.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence 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 the receiving water conditions shall be summarized in the monitoring report.

B. Monitoring Locations MW-3, MW-5, MW-9W, MW-10, MW-11, and MW-AW

1. 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 Well Nos. MW-3, MW-5, MW-9W, MW-10, 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. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

2. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring at MW-3, MW-5, MW-9W, MW-10, MW-11, and MW-AW, and any new groundwater monitoring wells shall include, at a minimum, the following:

Table E-9. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	±0.01 feet	Measurem ent	1/Quarter	--
Groundwater Elevation[1]	±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	[2]
Chloride	mg/L	Grab	1/Quarter	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	[2]
Sodium	mg/L	Grab	1/Quarter	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]
Fixed Dissolved Solids	mg/L	Grab	1/Quarter	[2]
pH	standard units	Grab	1/Quarter	[2]
Total Coliform Organisms	MPN/100 mL	Grab	1/Quarter	[2]
Total Nitrogen	mg/L	Grab	1/Quarter	[2]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	[2]
Ammonia (as NH_4)	mg/L	Grab	1/Quarter	[2]
Iron, Dissolved[3]	mg/L	Grab	1/Quarter	[2]
Manganese, Dissolved[3]	mg/L	Grab	1/Quarter	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] 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.
[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[3] Samples shall be filtered with a 0.45-micron filter prior to sample preservation.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected quarterly at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants listed in 40 C.F.R. part 122, Appendix D, Tables II and III (excluding total phenols).

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.”

c. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

B. Municipal Water Supply

1. Monitoring Location SPL-001

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

Table E-10. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids[1]	mg/L	Grab	1/Quarter	[2]
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab	1/Quarter	[2]
Standard Minerals[3]	mg/L	Grab	1/Year	[2]

[1] If the water supply is from more than one source, the total dissolved solids and electrical conductivity shall be reported as a weighted average and the Discharger shall include copies of supporting calculations in the SMR.
[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[3] Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

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

1. Monitoring Locations FIL-001 and UVS-001

a. The Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Location UVS-001 as follows:

Table E-11. Ultraviolet Light Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	MGD	Meter	UVS-001	Continuous[1]
Turbidity	NTU	Meter	FIL-001	Continuous[1,2]
Number of UV banks in operation	Number	Observation	N/A	Continuous[1]
UV Transmittance	Percent (%)	Meter	UVS-001	Continuous[1]
UV Dose[3]	mJ/cm^2	Calculated	N/A	Continuous[1]

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

[2] Report daily average and maximum turbidity.

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

D. Effluent and Receiving Water Characterization

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the receiving water portion of this Characterization Monitoring is not required. However, the Report of Waste Discharge for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents during the term of the permit. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. The Discharger may request that the Regional Monitoring Program perform sampling and laboratory analysis to address all or a portion of the monitoring under this Characterization Monitoring with the understanding that the Discharger will provide funding to the Regional Monitoring Program sufficient to reimburse all of the costs of this additional effort. Alternatively, the Discharger may conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Monitoring. 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.

1. **Monthly Monitoring.** Monthly samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in the table below. Monthly monitoring shall be conducted during 2017 (12 consecutive samples, evenly distributed throughout the year) and the results of such monitoring 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 the table below.

Table E-12. Effluent and Receiving Water Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2- Chloroethyl vinyl ether	µg/L	Grab	1
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	0.5
Carbon Tetrachloride	µg/L	Grab	0.5
Chlorobenzene	µg/L	Grab	0.5
Chloroethane	µg/L	Grab	0.5
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane	µg/L	Grab	0.5
Dichlorobromomethane	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Methyl bromide (Bromomethane)	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
Parachlorometa cresol	µg/L	Grab	--
Tetrachloroethene	µg/L	Grab	0.5
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	--
Trichlorofluoromethane	µg/L	Grab	--
1,1,1-Trichloroethane	µg/L	Grab	0.5
1,1-Dichloroethane	µg/L	Grab	0.5
1,1-Dichloroethylene	µg/L	Grab	0.5
1,2-Dichloropropane	µg/L	Grab	0.5
1,3-Dichloropropylene	µg/L	Grab	0.5
1,1,2,2-Tetrachloroethane	µg/L	Grab	0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	Grab	0.5
1,2,4-Trichlorobenzene	µg/L	Grab	1
1,2-Dichoroethane	µg/L	Grab	0.5
1,2-Dichlorobenzene	µg/L	Grab	0.5
1,3-Dichlorobenzene	µg/L	Grab	0.5
1,4-Dichlorobenzene	µg/L	Grab	0.5
Styrene	µg/L	Grab	--
Xylenes	µg/L	Grab	--
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate[2,3]	µg/L	Grab	5
Butyl benzyl phthalate	µg/L	Grab	10
Chrysene	µg/L	Grab	5
Di-n-butylphthalate	µg/L	Grab	10
Di-n-octylphthalate	µg/L	Grab	10
Dibenzo(a,h)-anthracene	µg/L	Grab	0.1
Diethyl phthalate	µg/L	Grab	10
Dimethyl phthalate	µg/L	Grab	10
Fluoranthene	µg/L	Grab	10
Fluorene	µg/L	Grab	10
Hexachlorocyclopentadiene	µg/L	Grab	5
Indeno(1,2,3-c,d)pyrene	µg/L	Grab	0.05
Isophorone	µg/L	Grab	1
N-Nitrosodiphenylamine	µg/L	Grab	1
N-Nitrosodimethylamine	µg/L	Grab	5
N-Nitrosodi-n-propylamine	µg/L	Grab	5
Nitrobenzene	µg/L	Grab	10
Pentachlorophenol	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum	µg/L	24-hr Composite[4]	--
Antimony	µg/L	24-hr Composite[4]	5
Arsenic	µg/L	24-hr Composite[4]	10
Asbestos	µg/L	24-hr Composite[4]	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Barium	µg/L	24-hr Composite[4]	--
Beryllium	µg/L	24-hr Composite[4]	2
Cadmium	µg/L	24-hr Composite[4]	0.5
Chromium (III)	µg/L	24-hr Composite[4]	50
Chromium (VI)	µg/L	24-hr Composite[4]	10
Copper	µg/L	24-hr Composite[4]	5
Cyanide	µg/L	24-hr Composite[4]	5
Fluoride	µg/L	24-hr Composite[4]	--
Iron	µg/L	24-hr Composite[4]	--
Lead	µg/L	24-hr Composite[4]	2
Mercury[3]	µg/L	Grab	0.5
Manganese	µg/L	24-hr Composite[4]	--
Molybdenum	µg/L	24-hr Composite[4]	--
Nickel	µg/L	24-hr Composite[4]	20
Selenium	µg/L	24-hr Composite[4]	5
Silver	µg/L	24-hr Composite[4]	2
Thallium	µg/L	24-hr Composite[4]	1
Tributyltin	µg/L	24-hr Composite[4]	--
Zinc	µg/L	24-hr Composite[4]	20
4,4'-DDD	µg/L	24-hr Composite[4]	0.05
4,4'-DDE	µg/L	24-hr Composite[4]	0.05
4,4'-DDT	µg/L	24-hr Composite[4]	0.01
alpha-Endosulfan	µg/L	24-hr Composite[4]	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite[4]	0.01
Alachlor	µg/L	24-hr Composite[4]	--
Aldrin	µg/L	24-hr Composite[4]	0.005
beta-Endosulfan	µg/L	24-hr Composite[4]	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Chlordane	µg/L	24-hr Composite[4]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Dieldrin	µg/L	24-hr Composite[4]	0.01
Endosulfan sulfate	µg/L	24-hr Composite[4]	0.01
Endrin	µg/L	24-hr Composite[4]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[4]	0.01
Heptachlor	µg/L	24-hr Composite[4]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[4]	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[4]	0.5
PCB-1016	µg/L	24-hr Composite[4]	0.5
PCB-1221	µg/L	24-hr Composite[4]	0.5
PCB-1232	µg/L	24-hr Composite[4]	0.5
PCB-1242	µg/L	24-hr Composite[4]	0.5
PCB-1248	µg/L	24-hr Composite[4]	0.5
PCB-1254	µg/L	24-hr Composite[4]	0.5
PCB-1260	µg/L	24-hr Composite[4]	0.5
Toxaphene	µg/L	24-hr Composite[4]	--
Atrazine	µg/L	24-hr Composite[4]	--
Bentazon	µg/L	24-hr Composite[4]	--
Carbofuran	µg/L	24-hr Composite[4]	--
2,4-D	µg/L	24-hr Composite[4]	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Dalapon	µg/L	24-hr Composite[4]	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	24-hr Composite[4]	--
Di(2-ethylhexyl)adipate	µg/L	24-hr Composite[4]	--
Dinoseb	µg/L	24-hr Composite[4]	--
Diquat	µg/L	24-hr Composite[4]	--
Endothal	µg/L	24-hr Composite[4]	--
Ethylene Dibromide	µg/L	24-hr Composite[4]	--
Methoxychlor	µg/L	24-hr Composite[4]	--
Molinate (Ordram)	µg/L	24-hr Composite[4]	--
Oxamyl	µg/L	24-hr Composite[4]	--
Picloram	µg/L	24-hr Composite[4]	--
Simazine (Princep)	µg/L	24-hr Composite[4]	--
Thiobencarb	µg/L	24-hr Composite[4]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[4]	--
2,4,5-TP (Silvex)	µg/L	24-hr Composite[4]	--
Diazinon[3]	µg/L	24-hr Composite[4]	--
Chlorpyrifos[3]	µg/L	24-hr Composite[4]	--
Ammonia (as N)[3]	mg/L	24-hr Composite[4]	--
Boron	µg/L	24-hr Composite[4]	--
Chloride	mg/L	24-hr Composite[4]	--
Flow[3]	MGD	Meter	--
Hardness (as $CaCO_3$)[3]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	24-hr Composite[4]	--
Mercury, Methyl[3]	ng/L	Grab	--
Nitrate (as N)[3]	mg/L	24-hr Composite[4]	--
Nitrite (as N)[3]	mg/L	24-hr Composite[4]	--
pH[3]	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite[4]	--
Specific conductance (EC)[3]	µmhos/cm	24-hr Composite[4]	--
Sulfate	mg/L	24-hr Composite[4]	--
Sulfide (as S)	mg/L	24-hr Composite[4]	--
Sulfite (as SO_3)	mg/L	24-hr Composite[4]	--
Temperature[3]	^oC	Grab	--
Total Dissolved Solids (TDS)[3]	mg/L	24-hr Composite[4]	--

[1] The reporting levels required in this table for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

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

[3] 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.

[4] 24-hour flow proportional composite.

E. Pond Monitoring

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

Table E-13. PND-001 and PND-002 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[1]	--
Freeboard	feet	Measure	1/Week	--

[1] Monitoring for pH only required for PND-001 (Secondary Effluent Storage Pond).

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

B. Self-Monitoring Reports (SMR's)

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

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

Table E-14. Monitoring Periods and Reporting Schedule

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

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

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

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

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

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

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

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

5. **Multiple Sample Data.** When determining compliance with an AMEL, 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 SMR's in accordance with the following requirements:

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

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDR's; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

   c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed by contracted laboratories.

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

   a. **Average Dry Weather Flow.** The Discharger shall calculate and report the average dry weather flow for the effluent. The average dry weather flow shall be calculated as specified in Section VII.C and reported in the December SMR.

b. **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.

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

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

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

d. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMR's. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.

e. **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 Limitations and Discharge Requirements.

f. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall calculate and report monthly in the self-monitoring report the dissolved oxygen concentration.

g. **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 Limitations and Discharge Requirements.

h. **Temperature Effluent and Receiving Water Limitations**. To determine compliance with Effluent Limitation IV.A.1.d, the Discharger shall calculate and report the difference in the daily average effluent temperature at Monitoring Locations EFF-001 and RSW-001 consistent with the Compliance Determination Language in Section VII.I 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.

i. **Chlorpyrifos and Diazinon Effluent Limitations**. The Discharger shall calculate and report the value of S_{AMEL} and S_{AWEL} for the effluent, using the equation in Effluent Limitations IV.A.1.h and consistent with the Compliance Determination Language in Section VII.H of the Limitations and Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

1. The Discharger shall electronically submit DMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program internet website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). The CIWQS internet website will provide additional information for DMR submittal in the event there will be a planned service interruption for electronic submittal. Hard copy submittals are not required.

D. Other Reports

1. **Special Study Reports and Progress Reports.** As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-15. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
CVCWA Coordinated Methylmercury Control Study, Progress Report (Special Provision VI.C.2.b)	**20 October 2015**
CVCWA Coordinated Methylmercury Control Study, Final Report (Special Provision VI.C.2.b)	**20 October 2018**
Pollution Prevention Plan for Mercury, Progress Report (Special Provision VI.C.3.a)	**1 December**, annually
Pollution Prevention Plan for Electrical Conductivity, Progress Report (Special Provision VI.C.3.c)	**1 December**, annually

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions VI.C. The Discharger shall report the progress in satisfaction of compliance schedule dates specified in Special Provisions – VI.C.7. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. **Within 60 days of permit adoption**, the Discharger shall submit a report outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, E-5, E-6, E-7, E-8, E-9, and E-10. **In addition, no less than 6 months prior to conducting the effluent and receiving water characterization monitoring required in Section IX.D**, the Discharger shall submit a report outlining RL's, MDL's, and analytical methods for the constituents listed in Table E-12. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-14 provides required maximum reporting levels in accordance with the SIP.

4. **Annual Operations Report. By 30 January of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:

   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.

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 **28 February** and include at least the following items:

   a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants U.S. EPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users. This will consist of an annual full priority pollutant scan. The Discharger is not required to sample and analyze for asbestos. The Discharger shall submit the results of the annual priority pollutant scan electronically to the Central Valley Water Board using the State Water Board's CIWQS Program Website.

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

b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by nondomestic users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.

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

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

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

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

   ii. consistently achieved compliance;

   iii. inconsistently achieved compliance;

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

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

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

   vii. compliance status unknown.

f. A report describing the compliance status of each SIU characterized by the descriptions in items iii through vii above shall be submitted for each calendar quarter by the first day of the second month following the end of the quarter. The report shall identify the specific compliance status of each such SIU and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report due every 28 February. This quarterly reporting requirement shall commence upon issuance of this Order.

g. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the 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.

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

i. Name of SIU;

ii. Category, if subject to federal categorical standards;

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

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

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

vi. For an 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.

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

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

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

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

Pretreatment Program reports shall be submitted to the Central Valley Water Board and the:

State Water Resources Control Board
Division of Water Quality
1001 I Street or P.O. Box 100
Sacramento, CA 95812

and the

Regional Administrator
U.S. Environmental Protection Agency WTR-5
75 Hawthorne Street
San Francisco, CA 94105

6. **Land Application Area Reporting.**

a. **Monthly Monitoring Reports.** The results of the required monitoring in this MRP for land discharge monitoring (Section VI) and pond monitoring (Section IX.E).

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:

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

Where:

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

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

C_{Pi} = 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)

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)

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 **1 February** 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. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

v. The calendar annual average TDS concentration for the wastewater applied to the Land Application Areas, measured at LND-001.

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 Water Board by **1 March**, each year. 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:

C_a = Flow-weighted annual average FDS concentration in mg/L
i = the number of the month (e.g. January = 1, Febnruary = 2, etc.)
C_{Pi} = Monthly average process wastewater FDS concentration for calendar month i in mg/L, measured at LND-001
V_{Pi} = 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.

e. **Water Recycling/Reuse.** An annual report shall be prepared and shall include an update of the Discharger's water recycling/reuse activities within the Discharger's service area. The annual report shall include the information required in Section VII and shall be submitted to the Central Valley Water Board by **1 February,** each year.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet includes 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

WDID	5B390104001
CIWQS Facility Place ID	239343
Discharger	City of Manteca and Dutra Farms, Inc.
Name of Facility	Wastewater Quality Control Facility
Facility Address	2450 West Yosemite Avenue
	Manteca, CA 95337
	San Joaquin County
Facility Contact, Title and Phone	Margaret Ramirez, Wastewater Systems Superindendent, (209) 456-8478
Authorized Person to Sign and Submit Reports	Phil Govea, Deputy Director of Public Works, (209) 239-8415
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	Producer
Facility Permitted Flow	Current Facility – 9.87 million gallons per day (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 River
Receiving Water Type	Estuary

A. The City of Manteca (hereinafter City) is the owner and operator of the City of Manteca, Wastewater Quality Control Facility (hereinafter Facility), a POTW. Dutra Farms, Inc. is the owner of a 70-acre agricultural field (APN 241-320-47) where wastewater from the Facility is

applied. Together the City of Manteca and Dutra Farms, Inc. are hereinafter referred to as the Discharger.

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 R5-2009-0095 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081558 adopted on 8 October 2009 and expired on 1 October 2014. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its WDR's and NPDES permit on 8 April 2014. The application was deemed complete on 20 May 2014.

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 87,000. The City has an approved EPA pretreatment program that has one non-categorical significant industrial user (SIU) and two categorical SIU's. The municipal wastewater collection system consists of two main lines servicing the City of Manteca that includes 184 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 wastewaters from the cutting and washing of these vegetables. However, 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 at the Facility, and then applied to agricultural fields when needed. The Facility occupies approximately 22 acres of the 210 acres owned by the City.

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility has a design average dry weather flow capacity of 9.87 MGD and is an activated sludge tertiary treatment plant. The Facility includes an influent pump station with two mechanical screens that serves two parallel treatment systems. Primary treatment consists of aerated grit removal and primary sedimentation. Primary effluent undergoes biological treatment by ultra fine-bubble activated sludge aeration basins that provides nitrification and denitrification, and is followed by secondary sedimentation.

Undisinfected secondary effluent is either stored for agricultural use in a 15 million gallon pond or blended with food processing waste 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 though 11), plus one field located on property owned by Dutra Farms, Inc. (shown in Attachment B, Figure B-2). The City-owned

agricultural fields total approximately 190 acres surrounding the Facility. Dutra Farms, Inc. is named in this Order as the responsible party for management and operation of its 70 acre agricultural field, APN 241-320-47, where wastewater is also applied.

Tailwater from the Fields 2, 4, 5, 10, and Dutra-Farms, Inc. is collected in a sump and pumped back to the irrigation supply system. Tailwater from Field 3 drains to a sump and pumped into the pond for irrigation. Tailwater from Field 6 percolates into the soil. Tailwater from Field 7 drains to Field 10, and 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 light (UV) disinfection. The disinfected tertiary effluent 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 to receive recycled water for construction purposes. The Discharger has plans for additional uses of recycled water. Disinfected tertiary level treated effluent is also 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 floatation 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 R5-2009-0095 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2009-0095 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (June 2010 – April 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	4.1	5.0	10
	lbs/day[1]	820	1,235	1,647	160	200	440
	lbs/day[2]	1,460	2,190	2,920	160	200	440
	% Removal	85	--	--	98[3]	--	--
Total Suspended Solids	mg/L	10	15	20	1.6	2.4	4.6
	lbs/day[1]	820	1,235	1,647	74	108	230
	lbs/day[2]	1,460	2,190	2,920	74	108	230
	% Removal	85	--	--	99[3]	--	--
pH	standard units	--	--	6.5 – 8.0	--	--	6.4 – 8.2

Parameter	Units	Effluent Limitation			Monitoring Data (June 2010 – April 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Total Coliform Organisms	MPN/100 mL	--	2.2[4]	23[5]/240[6]	--	--	170
Aluminum, Total Recoverable	µg/L	407	200[7]	750	26	14[8]	34
Copper, Total Recoverable	µg/L	10	--	13	6.0	--	6.0
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	12	--	--
Methylene Blue Active Substances	µg/L	500	--	--	180	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	3.4	2.2	--	5.4
	lbs/day[1]	115	--	280	94	--	231
	lbs/day[2]	204	--	497	94	--	231
Electrical Conductivity @ 25°C	µmhos/cm	700[9]/1,000[10]	--	--	862[11]/843[12]	--	--
Acute Toxicity	% Survival	--	--	70[13]/90[14]	--	--	65[15]
Temperature	°F	--	--	20[16]	--	--	26[17]
Average Dry Weather Flow	MGD	--	--	9.87[18]/17.5[19]	--	--	10.5
Chronic Toxicity	TUc	--	--	[20]	--	--	8

Parameter	Units	Effluent Limitation			Monitoring Data (June 2010 – April 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

[1] Based on an average dry weather flow of 9.87 MGD. Applicable until compliance with Special Provision VI.C.6.c of Order R5-2009-0095.
[2] Based on an average dry weather flow of 17.5 MGD. Applicable upon compliance with Special Provision VI.C.6.c of Order R5-2009-0095.
[3] Represents the minimum observed percent removal.
[4] Applied as a 7-day median effluent limitation.
[5] Not to be exceeded more than once in any 30-day period.
[6] Applied as an instantaneous maximum effluent limitation.
[7] Applied as an annual average effluent limitation.
[8] Represents the maximum observed annual average.
[9] Applicable 1 April through 31 August. Effluent limitations stayed by the Superior Court of California, County of Sacramento in the case of City of Manteca v. State Water Resources Control Board (Case No. 34-2010-80000492) and subsequently discontinued in amended Order R5-2009-0095-01.
[10] Applicable 1 September through 31 March. Effluent limitations discontinued in amended Order R5-2009-0095-01.
[11] Represents the maximum observed monthly average concentration between 1 April and 31 August.
[12] Represents the maximum observed monthly average concentration between 1 September and 31 March.
[13] Minimum for any one bioassay.
[14] Median for any three consecutive bioassays.
[15] Represents the minimum observed percent survival.
[16] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.
[17] Represents the maximum observed difference between the effluent temperature and upstream receiving water temperature.
[18] Applicable until compliance with Special Provision VI.C.6.c of Order R5-2009-0095.
[19] Applicable upon compliance with Special Provision VI.C.6.c of Order R5-2009-0095.
[20] There shall be no chronic toxicity in the effluent discharge.

D. Compliance Summary

1. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2011-0533 on 14 March 2011 which proposed to assess a civil liability of $3,000 against the Discharger for effluent violations of ammonia that occurred between 1 August 2009 and 30 November 2010. The Discharger paid the mandatory minimum penalty of $3,000.

2. The Central Valley Water Board issued ACL Complaint No. R5-2013-0516 on 4 March 2013 which proposed to assess a civil liability of $87,492 against the Discharger for two spill events on 22 October 2012 and 30 Nevember 2012. The Discharger paid the mandatory minimum penalty of $87,492.

E. Planned Changes

1. **Facility Upgrades.** The City is planning to expand the Facility from the currently permitted 9.87 MGD to 17.5 MGD. 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 R5-2009-0095, 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 260 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, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins (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. The Basin Plan in Table II-1, Section II, identifies present and potential uses for the Sacramento – San Joaquin Delta, which includes the San Joaquin River at the point of discharge. Beneficial uses applicable to the San Joaquin River 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).
--	Groundwater	Existing: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PROC).

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

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

   The 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. The State Water Board is currently considering new salinity and flow objectives in the South Delta that will address the Court Order. Therefore, at the time this Order was adopted the South Delta salinity objectives were not applicable to the Discharger.

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. This 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 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.

Requirements of this Order implement the Thermal Plan.

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"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 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 State Water Board Resolution 68-16.

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

6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels (MCL's) designed to protect human health and ensure that water is safe for domestic use.

7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. §§ 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 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"*.

   U.S. EPA's Toxics Release Inventory (TRI) indicates reportable off-site releases of nitrate compounds to the Facility occurred during the term of Order R5-2009-0095 from

California Natural Products. The Central Valley Water Board has adopted a numeric water quality objective for nitrate in the Basin Plan. As detailed elsewhere in this Order, available effluent quality data indicate that effluent concentrations of nitrate have a reasonable potential to cause or contribute to an excursion above the applicable numeric water quality objectives. An effluent limitation for nitrate is included in this permit pursuant to Water Code section 13263.6(a).

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 of 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.

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 southern portion of the Sacramento-San Joaquin Delta, which includes the San Joaquin River in the vicinity of the discharge, includes: chlorpyrifos, DDT, diazinon, electrical conductivity, group A pesticides, invasive species, mercury, and unknown toxicity.

2. **Total Maximum Daily Loads (TMDL's).** U.S. EPA requires the Central Valley Water Board to develop TMDL's for each 303(d) listed pollutant and water body combination. The table below identifies the 303(d) listings and the status of each TMDL.

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

Pollutant	Potential Sources	TMDL Completion[1]
Chlorpyrifos	Agriculture and Urban Runoff/Storm Sewers	2007
DDT	Agriculture	(2011)

Pollutant	Potential Sources	TMDL Completion[1]
Diazinon	Agriculture and Urban Runoff/Storm Sewers	2007
Electrical Conductivity	Agriculture	(2019)
Group A Pesticides	Agriculture	(2011)
Invasive Species	Unknown	(2019)
Mercury	Resource Extraction	2011
Unknown Toxicity	Unknown	(2019)

[1] Dates in parenthesis are proposed TMDL completion dates.

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. Machado Dairy Farm and Dutra Farms use these reclaimed wastewaters for irrigation purposes on the agricultural fields to grow dairy feed. Both farmers have rights to other source water; however, this source water is obtained from a local reservoir that is of higher-quality and used as municipal drinking water source for several local municipalities, including the City of Manteca. Therefore, use of reclaimed wastewater for irrigation purposes on agricultural fields to grow dairy feed, in this case, serves to conserve valuable surface water drinking water supplies. Moreover, both farmers must grow the feed for the dairy cows, and thus purchasing the feed instead would cause a financial hardship. In addition, because both farmers are family owned businesses, purchasing feed would most likely cause a family member to lose their position and thereby placing additional financial hardships. Furthermore, purchasing the feed would also raise operating costs, which could potentially raise the cost of the milk produced and thereby make the farms less competitive. The reuse of treated wastewater on the 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., §1311(b)(1)(C); 40 C.F.R. §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 IV-17.00, 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. §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 III-8.00) 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 a 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 MCL's. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*."

A. Discharge Prohibitions

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

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at C.F.R. section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the 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 inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on 40 C.F.R. section 122.41 et seq. that requires the proper design and operation of treatment facilities.

5. **Prohibition III.E (No discharge of hazardous or designated wastes).** This prohibition is necessary to protect the beneficial uses of the surface water and groundwater beneficial uses.

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 BOD_5, total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal regulations, 40 C.F.R. part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. This Order requires WQBEL's that are equal to or more stringent than the secondary technology-based treatment described in 40 C.F.R. part 133 and are necessary to protect the beneficial uses of the receiving stream. (See section IV.C.3.c of this Attachment for the discussion on pathogens.) In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. **Flow.** Currently, the Facility is designed to provide a tertiary level of treatment for up to a design flow of 9.87 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limitation of 9.87 MGD. The Discharger is planning an upgrade and expansion project that would increase the treatment capacity from

9.87 MGD to 17.5 MGD. Upon compliance with Provision VI.C.6.b of this Order, this Order contains an average dry weather discharge flow effluent limitation of 17.5 MGD.

c. **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.

Summary of Technology-based Effluent Limitations
Discharge Point 001

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	9.87[1]	--	--	--	--
		17.5[2]	--	--	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)[3]	mg/L	30	45	--	--	--
pH[3]	standard units	--	--	--	6.0	9.0
Total Suspended Solids[3]	mg/L	30	45	--	--	--

1 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.
2 Effective upon compliance with Special Provision VI.C.6.b of this Order, the average dry weather flow shall not exceed 17.5 MGD.
3 Note that more stringent WQBEL's for BOD_5, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.c of this Fact Sheet).

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

1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in section VI.C.3.c of this Fact Sheet.

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

such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983*." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 C.F.R. sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 C.F.R., 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 section 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 May 2011 through April 2014, which includes effluent and ambient background data submitted in SMR's and the Report of Waste Discharge (ROWD).

c. **Assimilative Capacity/Mixing Zone**

i. **Regulatory Guidance for Dilution Credits and Mixing Zones**. In the ROWD, the Discharger requested dilution credits for chronic aquatic life criteria for ammonia. No other dilution credits/mixing zones were requested. The CWA directs the states to adopt water quality standards to protect the quality of its waters. USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water

quality standards (40 CFR 122.44 and 122.45). The USEPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the USEPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001)(TSD).

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

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

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

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

A: A mixing zone shall not:

1. compromise the integrity of the entire water body;

2. cause acutely toxic conditions to aquatic life passing through the mixing zone;

3. restrict the passage of aquatic life;

4. adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;

5. produce undesirable or nuisance aquatic life;

6. result in floating debris, oil, or scum;

7. produce objectionable color, odor, taste, or turbidity;

8. cause objectionable bottom deposits;

9. cause nuisance;

10. dominate the receiving water body or overlap a mixing zone from different outfalls; or

11. be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy."

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

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

ii. **Receiving Water Characteristics**. The Facility discharges to the San Joaquin River. The effluent is discharged through a 36-inch diameter pipe located on the side bank, which provides minimal dilution, and is an *incompletely-mixed* discharge. The effluent is discharged into a tidally influenced section of the San Joaquin River, in which, under critical low flow conditions, flow reversals may occur on the flood tide and prolonged near-slack water conditions may occur for various combinations of tide and San Joaquin River flow. Flow direction reversals can potentially cause accumulation of effluent and double dosing.

iii. **Dilution/Mixing Zone Study Results.** The Discharger developed a model in 2002 to assess dilution and mixing zones. Hydrodynamic modeling was performed using the RMA-10 model and the results were published in the 10 October 2000 *Analysis of the Fate and Water Quality Impacts of the City of Manteca Discharge* (Resource Management Associates). The results of the hydrodynamic modeling were utilized in the water quality analysis that was published in October 2000 *Water Quality Analysis of Surface Water Discharge* (Larry Walker Associates).

In 2006, the Discharger developed the October 2006 *Near and Far Field Dilution Analysis of the Manteca Wastewater Discharge* (Resource Management Associates) that expanded the 2002 modeling work to include atmospheric thermal exchange and field investigations. The field investigations updated the model bathymetry, and allowed calibration and validation of the plume geometry calculations. The modeling and field studies presented a

spatial definition to the changes in temperature that occur in the receiving water, which was used to define a mixing zone for constituents subject to chronic aquatic and human health criterion, and dilution to be determined at the edge of the mixing zones. However, for acute aquatic criteria, the modeling and field studies demonstrated that there is limited dilution within the immediate vicinity of the outfall. Therefore, based on these findings, and that the Discharger did not provide any additional information, and consistent with Order R5-2009-0095, this Order does not allow a mixing zone nor grant dilution credits for acute aquatic life criteria.

Additionally, the 2006 modeling work for chronic simulations was performed utilizing the San Joaquin River flow conditions set at the 7Q10 of 615 cubic feet per second (cfs). The dilution modeling and analysis demonstrated that the minimum dilution for chronic aquatic life criteria at the permitted design flow of 9.87 MGD was 2:1 and at the 17.5 MGD was 1:1, with a mixing zone that extends 4,100 feet north of the outfall.

For human health criteria, the resultant analysis based on the 2006 dilution study demonstrated that at 5,280 feet north of the discharge a dilution credit for the flow of 9.87 MGD was 93:1 and for the flow of 17.5 MGD was 52:1, and that concentrations become fully mixed across the channel cross-section at approximately 5,400 feet north of the outfall. However, a human health mixing zone was not requested by the Discharger and is not allowed in this Order.

iv. **Evaluation of Available Dilution for Chronic Aquatic Life Criteria**. The Discharger requested a mixing zone for chronic aquatic life criteria for ammonia. The requested mixing zone extends 4,100 feet downstream of the discharge and results in dilution credits of 2.4:1 and 1.3:1, at the design discharge rates of 9.87 MGD and 17.5 MGD, respectively. The Discharger has not provided information demonstrating there is assimilative capacity and that a chronic aquatic life mixing zone of 4,100 feet meets the requirements in section 1.4.2.2 of the SIP. Based on these findings, and consistent with Order R5-2009-0095, this Order does not allow a mixing zone nor grant dilution credits for chronic aquatic life criteria to provide protection to the benthic community and to minimize the impacts of the discharge to the San Joaquin River.

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

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

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1] and the CTR[2]. The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 C.F.R. § 131.38(c)(4)) The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones[3]. 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)[4]. The CTR also 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 whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions.

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 and WQO 2004-0013 for the Yuba City Wastewater Treatment Plant. 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. (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)

The equation describing the total recoverable regulatory criterion, as established in the CTR[6], is as follows:

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

Where:

H = ambient hardness (as $CaCO_3$)[7]

WER = water-effect ratio

m, b = metal- and criterion-specific constants

From July 2010 through April 2014, the upstream receiving water hardness varied from 33 mg/L to 242 mg/L, based on 97 samples, and the downstream receiving water hardness varied from 32 mg/L to 249 mg/L, based on 97 samples. For calculating the CTR criteria the downstream ambient hardness has been used. The SIP, CTR, and State Water Board do not require use of the minimum observed

[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 $CaCO_3$), or less, the actual ambient hardness of the surface water must be used.
[3] 40 C.F.R. §131.3(c)(4)(ii)
[4] 40 C.F.R. §131.38(c)(4)(iii) Table 4
[5] 40 C.F.R. §131.38(c)(2)(i)
[6] 40 C.F.R. § 131.38(b)(2).
[7] For this discussion all hardness values are measured as $CaCO_3$.

ambient hardness in the CTR equations. The hardness used must be consistent with design conditions and protective of water quality criteria under all flow conditions.

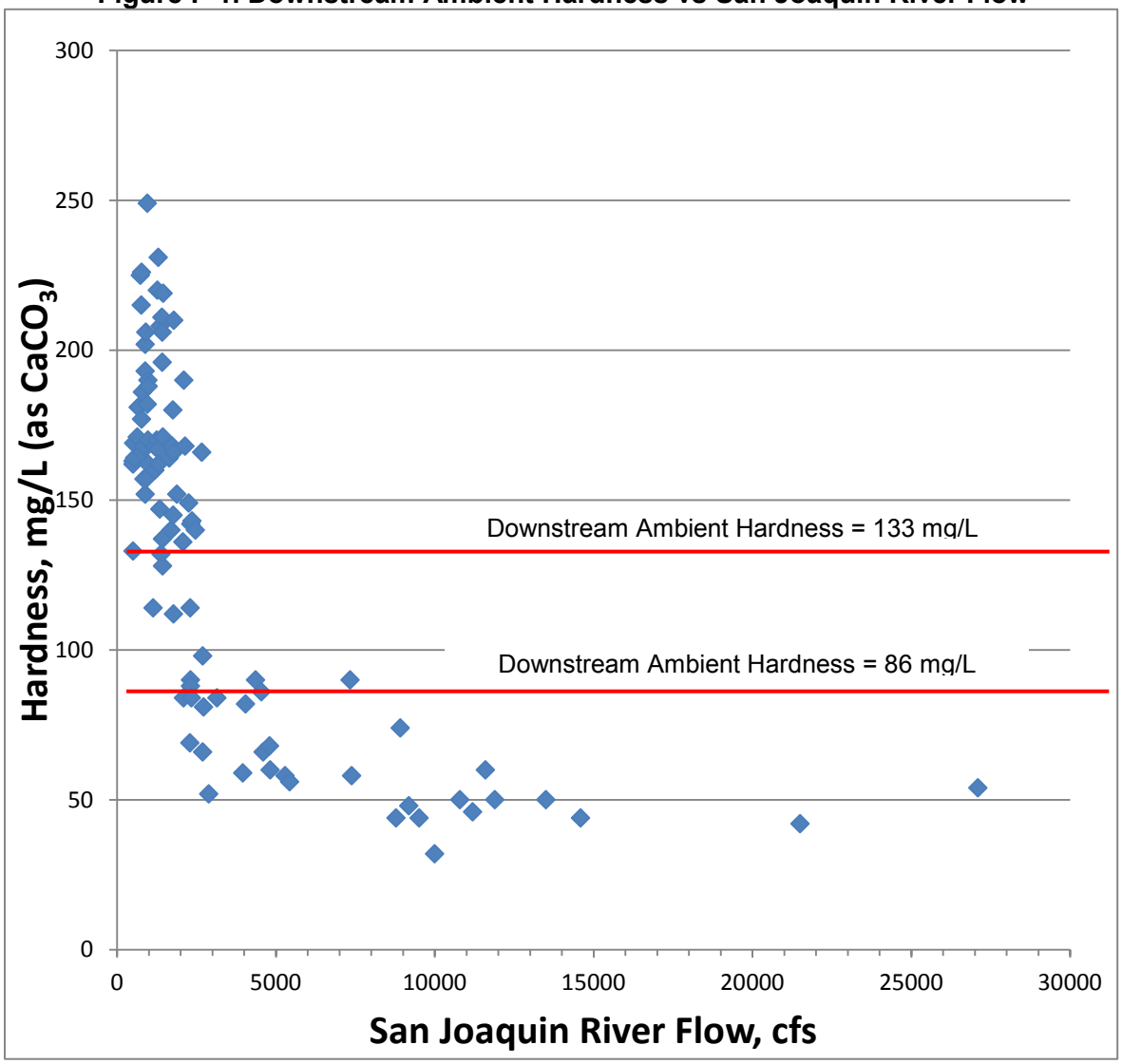
The San Joaquin River flow at Vernalis ranged from 463 cfs to 30,800 cfs from July 2010 through April 2014[1]. The higher flows are predominantly due to storm water runoff and snow melt, which contains low hardness. When graphing hardness as a function of hardness, there is a clear relationship between flow and hardness. The hardness is distinctly higher during low flows than during high flows (see Figure F-1). The lowest observed downstream ambient hardness during low flows has been considered for calculation of the CTR criteria.

Based on San Joaquin River flow data at Vernalis from 1990-2013, the 1Q10 and 7Q10 low flows for the San Joaquin River are approximately 550 cfs and 600 cfs, respectively[2]. The ambient hardness consistent with design conditions corresponds to the hardness when flows in the San Joaquin River are consistent with the 1Q10 and 7Q10 low flows. The lowest downstream ambient hardness when the San Joaquin River is less than 1,000 cfs is 133 mg/L. Using this design ambient hardness results in CTR criteria that are protective in many situations. However, based on site-specific conditions of the receiving water and discharge, under reasonable worst-case conditions lower criteria are necessary to be fully protective of aquatic life under all flow conditions. In this Order, a downstream ambient hardness of 86 mg/L (sampled on 2 November 2011) has been used to calculate the CTR criteria. This ambient hardness was selected using an iterative process and is demonstrated to be protective at all flow conditions in the tables below.

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

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

Figure F-1. Downstream Ambient Hardness vs San Joaquin River Flow



The Facility discharges both hardness and metals, which must be considered in the downstream ambient receiving water to ensure the criteria are protective under all flow conditions. The tables below examine how the downstream ambient conditions change with varying mixtures of effluent and upstream receiving water. The calculations determine whether or not toxicity could result from one or more metals using the selected design ambient hardness to calculate the CTR criteria.

A simple mass balance (Equation 2) is used to model the ambient concentrations of hardness and metals in the receiving water downstream of the discharge for all possible mixtures of effluent and upstream receiving water under all flow conditions.

$C_{downstream} = C_{upstream} \times (1\text{-}MIX) + C_{effluent} \times (MIX)$ (Equation 2)[1]

Where:

$C_{downstream}$ = Downstream receiving water concentration

$C_{upstream}$ = Upstream receiving water concentration

$C_{effluent}$ = Effluent concentration

MIX = Fraction of effluent in downstream ambient receiving water

In Tables F-6 through F-14, for each of several downstream ambient mixtures of upstream receiving water and effluent, the potential for toxicity is examined. The hardness of the mixture is calculated, and the resultant water quality criterion is calculated from the CTR equation. The metals concentration is also calculated for the mixture of upstream receiving water and effluent. If the metals concentration complies with the CTR criterion for that mixture, the ambient mixture is not toxic, and "Yes" is indicated in the far right column. If the metals concentration exceeds the CTR criterion for that mixture, the ambient concentration is toxic, and "No" is indicated in the far right column. The results of these evaluations are summarized in Table F-15.

For this evaluation the following conservative assumptions have been made:

- Upstream receiving water at the lowest observed upstream receiving water hardness (i.e., 33 mg/L)
- No assimilative capacity for each metal in the upstream receiving water (i.e., metals concentration equal to CTR criteria calculated using a hardness of 33 mg/L).
- Effluent hardness at the lowest observed effluent hardness of 114 mg/L.

Table F-6, below, is an example for copper where a design ambient hardness of 133 mg/L (i.e., the lowest downstream hardness consistent with design low flows) was used to calculate the CTR criteria. In this example, the mixed downstream ambient copper concentrations exceed the mixed CTR criteria at some mixtures. This example demonstrates that using this design ambient hardness to calculate the CTR criteria is not fully protective under the reasonable worst-case conditions described above. Tables are not provided in this discussion for the remaining hardness-dependent metals, but the results are similarly non-compliant with the CTR criteria.

[1] U.S. EPA NPDES Permit Writers' Manual, September 2010 (EPA-833-K-10-001)

Table F-6. Copper Evaluation (Design Ambient Hardness = 133 mg/L)

Assumed Upstream Receiving Water Copper Concentration					3.6 µg/L[1]
				Copper Chronic Criterion[2]	11.9 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Copper [5] (µg/L)	
High Flow	1%	33.81	3.7	3.7	Yes
	5%	37.05	4.0	4.0	Yes
	15%	45.15	4.7	4.9	No
	25%	53.25	5.4	5.7	No
	50%	73.5	7.2	7.8	No
	75%	93.75	8.8	9.8	No
Low Flow	100%	114	10.4	11.9	No

Lower criteria are necessary to be fully protective and an iterative approach was used to determine the ambient hardness that results in protective CTR criteria at all flow conditions. The following tables (F-7 through F-14) demonstrate that using a design ambient hardness of 86 mg/L to calculate the CTR criteria result in protective criteria for all flow conditions (i.e., the mixed downstream ambient metals concentrations do not exceed the CTR criteria).

Table F-7. Copper Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Copper Concentration					3.6 µg/L[1]
				Copper Chronic Criterion[2]	8.2 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Copper [5] (µg/L)	
High Flow	1%	33.81	3.7	3.7	Yes
	5%	37.05	4.0	3.8	Yes
	15%	45.15	4.7	4.3	Yes
	25%	53.25	5.4	4.8	Yes
	50%	73.5	7.2	5.9	Yes
	75%	93.75	8.8	7.1	Yes
Low Flow	100%	114	10.4	8.2	Yes

Table F-8. Chromium III Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Chromium III Concentration					83.5 µg/L[1]
				Chromium III Chronic Criterion[2]	182.9 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Chromium III [5] (µg/L)	
High Flow	1%	33.81	85.2	84.5	Yes
	5%	37.05	91.8	88.5	Yes
	15%	45.15	107.9	98.4	Yes
	25%	53.25	123.5	108.3	Yes
	50%	73.5	160.9	133.2	Yes
	75%	93.75	196.3	158.1	Yes
Low Flow	100%	114	230.4	182.9	Yes

Table F-9. Cadmium (Chronic) Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration					1.0 µg/L[1]
				Cadmium Chronic Criterion[2]	2.2 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Cadmium [5] (µg/L)	
High Flow	1%	33.81	1.1	1.0	Yes
	5%	37.05	1.1	1.1	Yes
	15%	45.15	1.3	1.2	Yes
	25%	53.25	1.5	1.3	Yes
	50%	73.5	1.9	1.6	Yes
	75%	93.75	2.3	1.9	Yes
Low Flow	100%	114	2.7	2.2	Yes

Table F-10. Cadmium (Acute) Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration					1.3 µg/L[1]
				Cadmium Acute Criterion[2]	3.8 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness [3] (mg/L)	CTR Criteria [4] (µg/L)	Cadmium [5] (µg/L)	
High Flow	1%	33.8	1.3	1.3	Yes
	5%	37.1	1.5	1.4	Yes
	15%	45.2	1.8	1.7	Yes
	25%	53.3	2.2	1.9	Yes
	50%	73.5	3.2	2.6	Yes
	75%	93.8	4.2	3.2	Yes
Low Flow	100%	114.0	5.2	3.8	Yes

Table F-11. Lead Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Lead Concentration					0.78 µg/L[1]
				Lead Chronic Criterion[2]	2.63 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Lead[5] (µg/L)	
High Flow	1%	33.8	0.8	0.8	Yes
	5%	37.1	0.9	0.9	Yes
	15%	45.2	1.2	1.1	Yes
	25%	53.3	1.4	1.2	Yes
	50%	73.5	2.1	1.7	Yes
	75%	93.8	2.9	2.2	Yes
Low Flow	100%	114.0	3.8	2.6	Yes

Table F-12. Nickel Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Nickel Concentration					20.4 µg/L[1]
				Nickel Chronic Criterion[2]	45.9 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Nickel[5] (µg/L)	
High Flow	1%	33.81	20.8	20.7	Yes
	5%	37.05	22.5	21.7	Yes
	15%	45.15	26.6	24.2	Yes
	25%	53.25	30.6	26.8	Yes
	50%	73.5	40.2	33.2	Yes
	75%	93.75	49.4	39.5	Yes
Low Flow	100%	114	58.3	45.9	Yes

Table F-13. Silver (Acute) Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Silver Concentration					0.6 µg/L[1]
				Silver Acute Criterion[2]	3.1 µg/L
Mix[6]		Mixed Downstream Ambient Concentration			Complies with CTR Criteria
		Hardness[3] (mg/L)	CTR Criteria[4] (µg/L)	Silver[5] (µg/L)	
High Flow	1%	33.8	0.6	0.6	Yes
	5%	37.1	0.7	0.7	Yes
	15%	45.2	1.0	1.0	Yes
	25%	53.3	1.4	1.2	Yes
	50%	73.5	2.4	1.9	Yes
	75%	93.8	3.6	2.5	Yes
Low Flow	100%	114.0	5.1	3.1	Yes

Table F-14. Zinc Evaluation (Design Ambient Hardness = 86 mg/L)

Assumed Upstream Receiving Water Zinc Concentration					**46.8 µg/L[1]**
Zinc Chronic Criterion[2]					**105.4 µg/L**
Mix[6]		**Mixed Downstream Ambient Concentration**			**Complies with CTR Criteria**
		Hardness [3] (mg/L)	**CTR Criteria [4] (µg/L)**	**Zinc [5] (µg/L)**	
High Flow	1%	33.81	47.8	47.4	**Yes**
	5%	37.05	51.7	49.8	**Yes**
	15%	45.15	61.1	55.6	**Yes**
	25%	53.25	70.2	61.5	**Yes**
	50%	73.5	92.3	76.1	**Yes**
	75%	93.75	113.4	90.8	**Yes**
Low Flow	100%	114	133.9	105.4	**Yes**

Footnotes for CTR Hardness-dependent Metals Tables (F-6 through F-14)

1 Highest assumed upstream receiving water metals concentration calculated using CTR equation (Equation 1) for chronic/ acute criterion at a hardness of **33 mg/L**.

2 CTR Criteria calculated using CTR equation (Equation 1) for chronic/acute criterion at the design ambient hardness for the particular metal (see Table F-15).

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable mixture using Equation 2.

4 Mixed downstream ambient criteria are the chronic/acute criteria calculated using the CTR equation (Equation 1) at the mixed hardness.

5 Mixed downstream ambient metals concentration is the mixture of the receiving water and effluent metals concentrations at the applicable mixture using Equation 2.

6 The mixture percentage represents the fraction of effluent in the downstream ambient receiving water. The mixture ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

The applicable design ambient hardness and CTR criteria for the hardness-dependent metals for which toxicity in ambient waters does not occur are as follows in Table F-15.

Table F-15. Summary of Design Ambient Hardness and CTR Criteria for Hardness-dependent Metals

CTR Metals	**Design Ambient Hardness (mg/L)**	**CTR Criteria (µg/L, total recoverable)[1]**	
		acute	**chronic**
Copper	86	12	8.2
Chromium III	86	1,500	180
Cadmium	86	3.8	2.2
Lead	86	67	2.6
Nickel	86	410	46
Silver	86	3.1	--
Zinc	86	110	110

1 Metal criteria rounded to two significant figures in accordance with the CTR.

3. Determining the Need for WQBEL's

a. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential (i.e., constituents were not detected in the effluent or receiving water); 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. However, the following constituents were found to have no reasonable potential after assessment of the data:

i. **Aluminum**

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 total organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al^{3+}) binding to negatively charged fish gills.

(a) **WQO.** The State Water Board Division of Drinking Water (DDW; formerly the Department of Public Health) has established Secondary MCL's to assist public drinking water systems in managing their drinking water for aesthetic conditions 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 MCL's on an annual average basis.

Title 40 of the Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38. Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. 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*." Relevant information includes, but is not limited to (1) U.S. EPA Ambient Water Quality Criteria (NAWQC) and subsequent Correction, (2) site-specific conditions of the San Joaquin River, the

receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p. IV.-17.00; see also, 40 C.F.R. §122.44(d)(vi).)

U.S. EPA NAWQC. U.S. EPA recommended the NAWQC aluminum acute criterion at 750 µg/L based on test waters with a pH of 6.5 to 9.0. U.S. EPA also recommended the NAWQC aluminum chronic criterion at 87 µg/L based upon the following two toxicity tests. All test waters contained hardness at 12 mg/L as $CaCO_3$.

(1) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 6.5) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390 µg/L, and the 160-day old striped bass showed 58% mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98% mortality at an aluminum dose of 87.2 µg/L in waters with pH at 6.0, which is U.S. EPA's basis for the 87 µg/L chronic criterion. The varied results draw into question this study and the applicability of the NAWQC chronic criterion of 87 µg/L.

(2) Chronic toxicity effects on 60-day old brook trout were evaluated in circumneutral pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation started upon hatching of eyed eggs of brook trout, and their weight and length were measured after 45 days and 60 days. The 60-day old brook trout showed 24% weight loss at 169 µg/L of aluminum and 4% weight loss at 88 µg/L of aluminum, which is the basis for U.S. EPA's chronic criteria. Though this test study shows chronic toxic effects of 4% reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

Site-specific Conditions. U.S. EPA advises that a water effects ratio (WER) may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms when the pH and hardness conditions of the receiving water are not similar to that of the test conditions[1]. Effluent and San Joaquin River monitoring data indicate that the pH and hardness values are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below, and therefore, the Central Valley Water Board does not expect aluminum to be as toxic in the San Joaquin River as in the previously described toxicity tests. The pH of the San Joaqin River, the receiving water, ranged from 6.6 to 9.7 with a median of 7.7 based on 76 monitoring results obtained between May 2011 and April 2014. These water conditions typically are circumneutral pH where aluminum is predominately in the form of $Al(OH)_3$ and non-toxic to aquatic life. The hardness of the San Joaquin River ranged from 33 mg/L to 242 mg/L,

[1] "*The value of 87 micro-g/L is based on a toxicity test with striped bass in water with pH = 6.5-6.6 and hardness < 10 mg/L. Data in* [a 1994 Study] *indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time*." U.S. EPA 1999 NAWQC Correction, Footnote L

based on 76 samples from May 2011 and April 2014, which is above the conditions, and thus less toxic, than the tests used to develop the chronic criterion.

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Effluent	Receiving Water
pH	standard units	6.0 – 6.5	6.4 – 8.2	6.6 – 9.7
Hardness, Total (as $CaCO_3$)	mg/L	12	114 – 191	33 – 242
Aluminum, Total Recoverable	µg/L	87.2 - 390	<0.1 – 22	180 – 920

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of the San Joaquin River are similar, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate for the San Joaquin River. As shown in the following table, all EC_{50}[1] toxicity study result values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters and in the San Joaquin River, is less toxic (or less reactive) to aquatic species then demonstrated in the toxicity tests that U.S. EPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests U.S. EPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to the San Joaquin River.

Central Valley Region Site-Specific Aluminum Toxicity Data

Discharger	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
***Oncorhynchus mykiss* (rainbow trout)**					
Manteca	Surface Water/Effluent	124	>8600	9.14	N/C
Auburn	Surface Water	16	>16500	7.44	N/C
Modesto	Surface Water/Effluent	120/156	>34250	8.96	>229
Yuba City	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
***Ceriodaphnia dubia* (water flea)**					
Auburn	Effluent	99	>5270	7.44	>19.3
	Surface Water	16	>5160	7.44	>12.4
Manteca	Surface Water/Effluent	124	>8800	9.14	N/C
	Effluent	117	>8700	7.21	>27.8
	Surface Water	57	7823	7.58	25.0
	Effluent	139	>9500	7.97	>21.2
	Surface Water	104	>11000	8.28	>24.5
	Effluent	128	>9700	7.78	>25.0
	Surface Water	85	>9450	7.85	>25.7
	Effluent	106	>11900	7.66	>15.3
	Surface Water	146	>10650	7.81	>13.7

[1] The effect concentration is a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapitation) in a given percent of the test organisms, calculated from a continuous model (e.g., Probit Model). EC_{50} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 50 percent of the test organisms. The EC_{50} is used in toxicity testing to determine the appropriate chronic criterion.

Discharger	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
Modesto	Surface Water/Effluent	120/156	31604	8.96	211
Yuba City	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
Placer County (SMD 1)	Effluent	150	>5000	7.4 – 8.7	>13.7
***Daphnia magna* (water flea)**					
Manteca	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	Surface Water/Effluent	120/156	>11900	8.96	>79.6
Yuba City	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5

The Discharger submitted a March 2007 *City of Manteca Aluminum Water-Effects Ratio (WER) Study* which recommends a WER of 22.7 applicable to both the acute and chronic objectives. The WER study was conducted in accordance with U.S. EPA guidance and has been reviewed and determined to be scientifically defensible (Review of City of Manteca Aluminum Water-Effects Ratio (WER) Study, 21 June 2007, Tetra Tech, Inc.). However, to be fully protective of the beneficial uses, the Central Valley Water Board determined that this WER is only applicable to the chronic objective since the study only reflected the conditions under which the chronic objective was determined and did not reflect the same conditions under which the acute objective was determined. Thus, applying the final WER of 22.7 to the acute criterion may be underprotective.

Applicable WQOs. This Order implements the Secondary MCL of 200 µg/L as an annual average for the protection of MUN and implements the Basin Plan's narrative toxicity objective for the protection of aquatic life using an acute (1-hour) criterion and chronic (4-day) criterion of 750 µg/L based on U.S. EPA's NAWQC and the discussion above. Order R5-2009-0095 included effluent limitations for aluminum based on the Secondary MCL and the NAWQC acute criterion.

(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 has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which 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. Title 22 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, the RPA was conducted based on the calendar year annual average effluent aluminum concentrations.

The maximum observed effluent annual average aluminum concentration was 14 µg/L based on 98 samples collected between May 2011 and April 2014. 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. Since the discharge does not demonstrate reasonable potential, the effluent limitations for aluminum have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

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. As discussed in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for copper are 12 µg/L and 8.2 µg/L, respectively. Order R5-2009-0095 included effluent limitations for copper based on the CTR criteria.

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

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

(b) **RPA Results.** The MEC for copper was 6 µg/L based on 95 samples collected between May 2011 and April 2014. The maximum observed upstream receiving water concentration for copper was 3.4 µg/L based on 12 samples collected between May 2011 and April 2014. Therefore, copper in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria or the Basin Plan objective, and the WQBEL's for copper have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Diazinon and Chlorpyrifos**

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

The amendment "…*modifies Basin Plan Chapter III (Water Quality Objectives) to establish site specific number objectives for diazinon and*

chlorpyrifos in the Delta Waterways." The amendment also "…*identifies the requirements to meet the additive formula already in Basin Plan Chapter IV (Implementation), for the additive toxicity of diazinon and chlorpyrifos.*"

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

$$S = \frac{C_d}{WQO_d} + \frac{C_c}{WQO_c} \leq 1.0$$

Where:

C_d *= diazinon concentration in µg/L of point source discharge*

C_c *= chlorpyrifos concentration in µg/L of point source discharge*

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

WQO_c *= 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.** Chlorpyrifos was not detected in the effluent or upstream receiving water based on 12 samples collected between May 2011 and April 2012 (MDL 0.065 µg/L, RL 1 µg/L). Diazinon was not detected in the effluent or upstream receiving water based on 12 samples collected between May 2011 and April 2012 (MDL 0.062 µg/L, RL 0.25 µg/L). However, due to the TMDL for diazinon and chlorpyrifos in the Delta, WQBEL's for these constituents are required. The TMDL waste load allocation applies to all NPDES dischargers to Delta waterways and will serve as the basis for 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 the Delta. Therefore, this Order includes effluent limits calculated based on the waste load allocations contained in the TMDL, as follows:

(1) Average Monthly Effluent Limitation (AMEL)

$$S_{AMEL} = \frac{C_{D\ M-AVG}}{0.08} + \frac{C_{C\ M-AVG}}{0.012} \leq 1.0$$

$C_{D\ M\text{-}avg}$ = average monthly diazinon effluent concentration in µg/L.

$C_{C\ M\text{-}avg}$ = average monthly chlorpyrifos effluent concentration in µg/L.

(2) Average Weekly Effluent Limitation (AWEL)

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

$C_{D\ W\text{-}avg}$ = weekly average diazinon effluent concentration in µg/L.

$C_{C\ W\text{-}avg}$ = weekly average chlorpyrifos effluent concentration in µg/L.

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

iv. **Iron**

(a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for iron is 300 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply. The Basin Plan contains a site-specific numeric objective for the Delta of 300 µg/L (maximum concentration) for iron, expressed as dissolved metal, based on the Secondary MCL.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Iron is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which 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. Title 22 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, the RPA was conducted based on the calendar year annual average effluent iron concentrations.

The maximum annual average effluent concentration for iron was 44 µg/L based on 12 samples collected between May 2011 and April 2014. 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 iron.

v. **Manganese**

(a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for manganese is 50 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply. The Basin Plan contains a site-specific numeric objective for the Delta of 50 µg/L (maximum concentration) for manganese, expressed as dissolved metal, based on the Secondary MCL.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Manganese is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which 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. Title 22 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, the RPA was conducted based on the calendar year annual average effluent manganese concentrations.

The maximum annual average effluent concentration for manganese was 16 µg/L based on 12 samples collected between May 2011 and April 2014. 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 manganese.

vi. **Methylene Blue Active Substances**

(a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for methylene blue active substances is 500 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply. Order R5-2009-0095 included an AMEL of 500 µg/L based on the Secondary MCL.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Methylene blue active substances is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which 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. Title 22 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, the RPA was conducted based on the calendar year annual average effluent methylene blue active substances concentrations.

The maximum annual average effluent concentration for methylene blue active substances was 53 µg/L based on 69 samples collected between May 2011 and April 2014. 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 methylene blue active substances. Since the discharge does not demonstrate reasonable potential, the effluent limitation for methylene blue active substances has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

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

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

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

(b) **RPA Results.** Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. "Clean techniques" are used to ensure that sample containers, sampling apparatus, and analytical equipment are not sources of the detections for monitoring bis (2 ethylhexyl) phthalate. Order R5-2009-0095 required the use of "clean techniques" for bis (2-ethylhexyl) phthalate monitoring.

Bis (2-ethylhexyl) phthalate was detected but not quantified in the effluent in seven samples with a maximum estimated concentration of 2.9 µg/L based on 36 samples collected between May 2011 and April 2012. Bis (2-ethylhexyl) phthalate was detected but not quantified in the upstream receiving water in six samples with a maximum estimated concentration of 2 µg/L based on 12 samples collected between May 2011 and April 2012. The Discharger indicated that the contract laboratory used to conduct the characterization monitoring experienced multiple quality assurance/quality control (QA/QC) issues, As shown in the following table, multiple QA/QC issues, including detections in the method blank, occurred.

Table F-16. Bis (2-Ethylhexyl) Phthalate Data Summary

Sample Date	Results[1] (µg/L)	SIP ML (µg/L)	RL (µg/L)	Laboratory Blank (µg/L)
Effluent				
24 July 2012	0.38 J	5	5	--
11 September 2012	1.2 J	5	5	1.9
23 October 2012	0.3 J	5	5	--
13 November 2012	0.39 J	5	5	2.4
14 March 2013	1.4 J	5	5	3.6
11 April 2013	2.9 J	5	5	8.5
6 January 2014	0.9 J	5	5	--
Upstream Receiving Water				
14 August 2012	0.64	5	5	--
23 October 2012	1.6	5	5	--
5 December 2012	0.31	5	5	6.5
16 January 2013	0.67	5	5	0.74
13 March 2013	2	5	5	3.6
10 April 2013	0.78	5	5	8.5

[1] Only detected results shown. Bis (2-ethylhexyl) phthalate was not detected in the remaining 29 effluent samples or the remaining 6 upstream receiving water samples.

SIP Section 2.4.2 states that the Minimum Level (ML) is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.

(1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the reporting level (RL).

(2) An RL can be lower than the ML in Appendix 4 only when the discharger agrees to use a RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use an RL lower than the listed ML's.

(3) SIP Section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

(4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

(5) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL*." Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.

(6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.

(7) In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the invalid data. Therefore, the Central Valley Water Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP policy.

SIP Appendix 4 cites two MLs for bis (2-ethylhexyl) phthalate. The lowest applicable ML cited for bis (2-ethylhexyl) phthalate is 5 µg/L. The Discharger used an analytical method that was equivalent to the ML required by the SIP. The effluent results were all estimated values (i.e., DNQ) or non-detect. Therefore, the submitted effluent bis (2-ethylhexyl) phthalate data is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for bis (2-ethylhexyl) phthalate. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this

Order may be reopened and modified by adding an appropriate effluent limitation.

ii. **1,2-diphenylhydrazine**

(a) **WQO.** The CTR includes a criterion of 0.04 µg/L for 1,2-diphenylhydrazine for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** 1,2-diphenylhydrazine was detected but not quantified in the effluent in one sample at an estimated concentration of 0.3 µg/L based on 12 samples collected between May 2011 and April 2012. 1,2-diphenylhydrazine was not detected in the upstream receiving water based on 12 samples collected between May 2011 and April 2012.

Table F-17. 1,2-Diphenylhydrazine Effluent Data Summary

Sample Date	Results (µg/L)	SIP ML (µg/L)	RL (µg/L)
24 July 2012	ND	1	1
14 August 2012	0.3 J	1	1
11 September 2012	ND	1	1
23 October 2012	ND	1	1
14 November 2012	ND	1	1
5 December 2012	ND	1	1
17 January 2013	ND	1	1
13 February 2013	ND	1	1
14 March 2013	ND	1	1
11 April 2013	ND	1	1
16 May 2013	ND	1	1
13 June 2013	ND	1	1

SIP Section 2.4.2 states that the ML is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.

(1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the RL.

(2) An RL can be lower than the ML in Appendix 4 only when the discharger agrees to use a RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use an RL lower than the listed ML's.

(3) SIP Section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

(4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

(5) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states,

"*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL*." Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.

(6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.

(7) In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the invalid data. Therefore, the Central Valley Water Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP policy.

SIP Appendix 4 cites an ML of 1 µg/L for 1,2-diphenylhydrazine. The Discharger used an analytical method that was equivalent to the ML required by the SIP. The effluent results were all estimated values (i.e., DNQ) or non-detect. Therefore, the submitted effluent 1,2-diphenylhydrazine data is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for 1,2-diphenylhydrazine. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

iii. **Heptachlor**

(a) **WQO.** The CTR includes a criterion of 0.00021 µg/L for heptachlor for the protection of human health for waters from which both water and organisms are consumed. The Basin Plan requires that no individual pesticide shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include heptachlor.

(b) **RPA Results.** Heptachlor was detected but not quantified in the effluent in one sample at an estimated concentration of 0.0054 µg/L based on 12 samples collected between May 2011 and April 2012. Heptachlor was not detected in the upstream receiving water based on 12 samples collected between May 2011 and April 2012.

Table F-18. Heptachlor Effluent Data Summary

Sample Date	Results (µg/L)	SIP ML (µg/L)	RL (µg/L)
24 July 2012	ND	0.01	0.01
14 August 2012	ND	0.01	0.01
11 September 2012	ND	0.01	0.01
23 October 2012	ND	0.01	0.01
14 November 2012	ND	0.01	0.01
5 December 2012	ND	0.01	0.01
17 January 2013	ND	0.01	0.01
13 February 2013	ND	0.01	0.01
14 March 2013	0.0054 J	0.01	0.01
11 April 2013	ND	0.01	0.01
16 May 2013	ND	0.01	0.01
13 June 2013	ND	0.01	0.01

SIP Section 2.4.2 states that the ML is the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.

(1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the RL.

(2) An RL can be lower than the ML in Appendix 4 only when the discharger agrees to use a RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use an RL lower than the listed ML's.

(3) SIP Section 1.2 requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. SIP Section 1.2 further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

(4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.

(5) Further, SIP Section 2.4.5 (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL*." Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.

(6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with Section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.

(7) In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the invalid data. Therefore, the Central Valley Water Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP policy.

SIP Appendix 4 cites an ML of 0.01 µg/L for heptachlor. The Discharger used an analytical method that was equivalent to the ML required by the SIP. The effluent results were all estimated values (i.e., DNQ) or non-detect. Therefore, the submitted effluent heptachlor data is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, Step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of limitations, additional monitoring has been established for heptachlor. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

iv. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, live stock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use.

Table F-19. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective[1]	Secondary MCL[2]	U.S. EPA NAWQC	Effluent	
				Average[3]	Maximum
EC (µmhos/cm)	Varies	900, 1600, 2200	N/A	772	867
TDS (mg/L)	Varies	500, 1000, 1500	N/A	449	518
Sulfate (mg/L)	Varies	250, 500, 600	N/A	37	69
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	103	110

1 Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

2 The Secondary MCL's are stated as a recommended level, upper level, and a short-term maximum level.

3 Maximum calendar annual average.

(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.

(2) **Electrical Conductivity.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm 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[1]. 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. The State Water Board is currently considering new salinity and flow objectives in the South Delta that will address the Court Order. Therefore, at the time

1 The Bay-Delta Plan includes water quality objectives at three locations in the South Delta for EC. The water quality objectives are a 14-day running average EC of 700 µmhos/cm from 1 April – 31 August and a 14-day running average EC of 1,000 µmhos/cm from 1 September – 31 March.

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.

(4) **Total Dissolved Solids.** The Secondary MCL for total dissolved solids is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) **RPA Results**

(1) **Chloride.** Chloride concentrations in the effluent ranged from 62 mg/L to 110 mg/L, with a maximum annual average of 103 mg/L based on 12 samples collected between May 2011 and April 2014. These levels do not exceed the Secondary MCL. Background concentrations in the San Joaquin River ranged from 40 mg/L to 130 mg/L, with a maximum annual average of 99 mg/L, based on 12 samples collected between May 2011 and April 2014. The applicable water quality objective to implement the Basin Plan's narrative chemical constituents objective for salinity is the Bay-Delta Plan south Delta salinity objectives, which are under development.

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports shows a maximum annual average effluent electrical conductivity of 772 µmhos/cm, with a range from 508 µmhos/cm to 867 µmhos/cm. These levels do not exceed the Secondary MCL. Background concentrations in the San Joaquin River ranged from 126 µmhos/cm to 1,140 µmhos/cm, with a maximum annual average of 714 µmhos/cm, based on 76 samples collected between May 2011 and April 2014. The applicable water quality objective to implement the Basin Plan's narrative chemical constituents objective for salinity is the Bay-Delta Plan south Delta salinity objectives, which are under development.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 27 mg/L to 69 mg/L, with a maximum annual average of 37 mg/L based on 12 samples collected between May 2011 and April 2014. These levels do not exceed the Secondary MCL. Background concentrations in the San Joaquin River ranged from 26 mg/L to 130 mg/L, with a maximum annual average of 93 mg/L, based on 12 samples collected between May 2011 and April 2014. The Discharge does not have reasonable potential for sulfate.

(4) **Total Dissolved Solids.** The maximum annual average total dissolved solids effluent concentration was 449 mg/L with concentrations ranging from 339 mg/L to 518 mg/L based on 49 samples collected between May 2011 and April 2014. These levels do not exceed the Secondary MCL. Background concentrations in the San Joaquin River ranged from 120 mg/L to 653 mg/L, with a maximum annual average of 435 mg/L, based on 24 samples collected between May 2011 and April 2014. The applicable water quality objective to implement the Basin Plan's

narrative chemical constituents objective for salinity is the Bay-Delta Plan south Delta salinity objectives, which are under development.

(c) **WQBEL's.** The State Water Board is currently revising the Bay-Delta Plan to include salinity objectives that would be applicable to the discharge. Due to concerns regarding salinity levels in the Delta, this Order includes a performance-based effluent limitation of 1,000 µmhos/cm for electrical conductivity to be applied as an annual average to limit the discharge to current levels until the Bay-Delta Plan is amended. This performance-based limitation is based on current treatment plant performance, current and future source water availability due to the drought, and will ensure that the mass loading of salinity does not increase. In addition, to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to continue to implement their Pollution Prevention Plan (PPP) for electrical conductivity. Also water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the community.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum observed annual average electrical conductivity concentration of 772 µg/L is less than the applicable WQBEL. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation 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, BOD_5, mercury, nitrate plus nitrite, pathogens, pH, salinity, 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 1999 USEPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature.

The USEPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia

in freshwater (the "2013 Criteria") [1]. The 2013 Criteria is an update to USEPA's 1999 Criteria, and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species tested for development of the 2013 Criteria may not be present in some Central Valley waterways. The 2013 Criteria document therefore states that, "unionid mussel species are not prevalent in some waters, such as the arid west …" and provides that, "In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria dataset to better represent the species present at the site."

The Central Valley Water Board issued a 3 April 2014 *California Water Code Section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter to the Central Valley Water Board indicating their participation in the Central Valley Clean Water Association Freshwater Collaborative Mussel Study. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan's narrative toxicity objective.

The temperature of the effluent varies seasonally. Therefore, seasonal water quality criteria were calculated for the winter season (i.e., December through March) and the summer season (i.e., April through November). The 1999 NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the San Joaquin River has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in the San Joaquin River is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

[1] *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*, published August 2013 [EPA 822-R-13-001]

Based on 815 effluent samples from May 2011 – November 2013 the effluent pH ranged from 6.5 – 7.6. In order to protect against the reasonable worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.62 mg/L.

A chronic criterion was calculated for each day when paired temperature data and pH were measured using effluent data for temperature and pH. Rolling 30-day average criteria were calculated from effluent data using the criteria calculated for each day and the minimum observed 30-day average criteria was established as the applicable 30-day average chronic criterion, or 30-day CCC. The applicable 30-day CCC for the winter and summer seasons are 4.23 mg/L and 2.37 mg/L, respectively. The 4-day average concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC's of 4.23 mg/L and 2.37 mg/L, the 4-day average concentration that should not be exceeded for the winter and summer seasons are 10.6 mg/L and 5.93 mg/L, respectively.

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, without treatment, would be harmful to fish and would violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and effluent limitations 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. 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 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 LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the 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 2.6 mg/L and 4.7 mg/L, respectively, for the winter season and 2.1 mg/L and 4.4 mg/L, respectively, for the summer season.

(d) **Plant Performance and Attainability.** Based on 175 sample results for the effluent collected between May 2011 and April 2014, the maximum monthly average effluent ammonia concentration was 1.4 mg/L and the maximum weekly average effluent concentration was 2.2 mg/L, which did not exceed the applicable effluent limits. Based on the sample results for the effluent, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

ii. **Mercury**

(a) **WQO.** The Basin Plan contains fish tissue objectives for all Delta waterways listed in Appendix 43 of the Basin Plan that 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 wasteload allocations 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 g/year of methylmercury, 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 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.

(b) **RPA Results.** Section 1.3 of the SIP states, "*The RWQCB shall conduct the analysis in this section for 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) Although an RPA is not required, based on the available effluent and receiving water methylmercury data, it appears the discharge is causing or contributing to an exceedance of the concentration of methylmercury in water to meet the site-specific fish tissue objectives in the Basin Plan.

The MEC for mercury was 2.71 ng/L based on 36 samples collected between May 2011 and April 2014. The maximum observed upstream receiving water mercury concentration was 7.18 ng/L based on 19 samples collected between May 2011 and April 2014. The maximum observed effluent concentration for methylmercury was 0.04 ng/L based on 36 samples collected between May 2011 and April 2014. The maximum observed upstream receiving water methylmercury concentration was 0.23 ng/L based on 12 samples collected between May 2011 and April 2014.

(c) **WQBEL's.** The Basin Plan's Delta Mercury Control Program includes wasteload allocations for POTW's in the Delta, including for the Discharger. This Order contains a final WQBEL for methylmercury based on the wasteload allocation. The total calendar annual methylmercury load shall not exceed 0.38 grams.

(d) **Plant Performance and Attainability.** Based on available effluent methylmercury data, the Central Valley Water Board finds the Discharger is unable to immediately comply with the final WQBEL's for methylmercury. Therefore, a compliance schedule in accordance with the

State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in this Order.

iii. **Nitrate and Nitrite**

(a) **WQO.** DDW has adopted Primary MCL's 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, if untreated, will be harmful to fish and will violate the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia). Reasonable potential for nitrate and nitrite therefore exists and WQBEL's are required.

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

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

regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." With regard to POTW'S, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potenetial to exceed or threaten 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 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 a final AMEL for nitrate plus nitrite of 10 mg/L (total as N) and an AWEL of 15.3 mg/L (total as N), based on the Primary MCL. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

(d) **Plant Performance and Attainability.** The maximum observed monthly average effluent nitrate plus nitrite concentration was 12 mg/L, which occurred in February 2012. The exceedance in February 2012 was due to operating conditions that led to the loss of denitrification in the activated sludge process. The Discharger implemented corrections and the denitrification process was restored to within permit limitations by March 2012. With the exception of the February 2012 exceedance, 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.

iv. **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 the 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 10 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD_5, 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 BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD_5 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 BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's for BOD_5 and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly effluent limitation (AWEL) and AMEL, an MDEL for BOD_5 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 UV disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **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 978 samples collected between May 2011 and April 2014, the maximum pH reported was 8.2 and the minimum was 6.4. The Facility exceeded the instantaneous minimum Basin Plan objective once and did not exceed the instantaneous maximum Basin Plan objective. 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.** Order R5-2009-0095 contained minimum and maximum effluent limitations of 6.5 and 8.0. The maximum effluent limitation of 8.0 is more stringent than required by the Basin Plan pH objective and was based on the treatment capabilities of the Facility. The Discharger has requested that the maximum effluent limitation be revised from 8.0 to 8.5. Since the effluent pH has not exceeded 8.5 during the term of Order R5-2009-0095 and a pH of 8.5 is equivalent to the applicable water quality objective, this Order includes a revised maximum effluent limitation of 8.5.

(d) **Plant Performance and Attainability.** The Facility exceeded the instantaneous minimum effluent limitation once and did not exceed the instantaneous maximum Basin Plan objective based on 978 samples. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. **Temperature**

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

(b) **RPA Results.** Treated domestic wastewater is an elevated temperature waste, which could cause or threaten to cause the receiving water temperature to exceed temperature objectives established in the Thermal Plan. Therefore, reasonable potential exists for temperature and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, 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 Thermal Plan requirements.

(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.** Analysis of the effluent and receiving water data indicates that the discharge can meet the Thermal Plan requirements at the current permitted capacity of 9.87 MGD. However, based on thermal modeling conducted by the Discharger (City of Manteca Thermal Plan Exception Analysis Final Report, February 2006) (Thermal Exception Report) the expanded discharge of 17.5 MGD may at times not meet the Thermal Plan requirements. The Thermal Exception Report assessed impacts of the discharge on fishery resources within the vicinity of the discharge, and based on modeling results, field investigations, and a migratory fish species impact assessment, the study concludes that since the area in the receiving water in which the Thermal Plan objectives are not met is sufficiently small, there are no significant adverse effects to the most sensitive aquatic species. Thus, the Discharger requested an exception to the Thermal Plan. This Order does not authorize an exception to the Thermal Plan.

4. WQBEL Calculations

a. This Order includes WQBEL's for ammonia, BOD_5, electrical conductivity, 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:

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

where:

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

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. For ECA's based on MCL's, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. **Basin Plan Objectives and MCL's.** For WQBEL's based on site-specific numeric Basin Plan objectives or MCL's, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. **Aquatic Toxicity Criteria.** WQBEL's based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECA's 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.

e. **Human Health Criteria.** WQBEL's based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to ECA and a statistical multiplier was used to calculate the MDEL.

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

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

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

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

Summary of Water Quality-Based Effluent Limitations
Discharge Point 001

Table F-20. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	820	1,200	1,700	--	--
	lbs/day[2]	1,500	2,200	3,000	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	820	1,200	1,700	--	--
	lbs/day[2]	1,500	2,200	3,000	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N) (1 April - 30 November)	mg/L	2.1	4.4	--	--	--
	lbs/day[1]	170	360	--	--	--
	lbs/day[2]	310	640	--		
Ammonia Nitrogen, Total (as N) (1 December - 31 March)	mg/L	2.6	4.7	--	--	--
	lbs/day[1]	210	390	--	--	--
	lbs/day[2]	380	690	--	--	--
Diazinon and Chlorpyrifos	µg/L	[3]	--	[4]	--	--
Electrical Conductivity @ 25°C	µmhos/cm	1,000[5]	--	--	--	--
Methylmercury	grams/year	0.38[6]	--	--	--	--
Nitrate plus Nitrite (as N)	mg/L	10	15.3	--	--	--
Temperature	°F	--	--	20[7]	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[8]	23[9]	--	240

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum

[1] 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).

[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

$$S_{AMEL} = \frac{C_{D\ M-AVG}}{0.08} + \frac{C_{C\ M-AVG}}{0.012} \leq 1.0$$

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

[4] Average Weekly Effluent Limitation

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

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

[5] Applied as an annual average effluent limitation.

[6] The effluent calendar year annual methylmercury load shall not exceed 0.38 grams.

[7] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20ºF.

[8] Applied as a 7-day median effluent limitation.

[9] Not to be exceeded more than once in any 30-day period.

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 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 page III-8.00) The Basin Plan also states that, "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…*".

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

compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

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

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

Minimum for any one bioassay ---------- 70%
Median for any three consecutive bioassays ---------- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at page III-8.00.) As shown in the table below, based on chronic WET testing performed by the Discharger from May 2011 through April 2014, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

Table F-21. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
14 June 2011	1	1	2	2	1
5 July 2011	--	--	1	1	--
7 August 2011	--	--	1	1	--
21 August 2011	--	--	1	1	--
6 September 2011	1	1	1	1	1
6 December 2011	1	1	1	2	2
11 December 2011	--	--	--	--	2
22 December 2011	--	--	--	--	2
5 January 2012	--	--	--	--	1
8 January 2012	--	--	1	1	--
22 January 2012	--	--	1	1	1.3
5 February 2012	--	--	1	1	1.3
21 February 2012	1	1	1	1	2
5 March 2012	--	--	--	--	2
2 April 2012	--	--	--	--	1
15 April 2012	--	--	--	--	1

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
29 April 2012	1	1	1	8	1
20 May 2012	--	--	1	1	--
5 September 2012	1	1	--	--	1
18 September 2012	--	--	1	1	--
2 December 2012	1	1	1	1	1
4 February 2013	1	1	1	8	1
25 February 2013	--	--	1	8	--
11 March 2013	--	--	1	1	--
25 March 2013	--	--	1	1	--
8 April 2013	--	--	1	1	--
22 April 2013	1	1	1	1	1
9 September 2013	1	1	1	1	1
2 December 2013	1	1	1	1	1
17 March 2014	1	1	1	1	1

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding **1** chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for Toxicity Reduction Evaluation (TRE) initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.*" The process to revise the SIP is currently underway. Proposed changes include

[1] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a).

clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger use best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. section 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a TRE in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

Mass-based effluent limitations have been established in this Order for ammonia, BOD_5, and TSS because they are oxygen demanding substances. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations were calculated based upon the design flow (average dry weather flow) permitted in section IV.A.1.g of this Order.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45(d) requires AWEL's and AMEL's for POTW's unless impracticable. For BOD_5, pH, and TSS, AWEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

3. Satisfaction of Anti-Backsliding Requirements

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2009-0095, with the exception of effluent limitations for ammonia, aluminum, copper, methylene blue active substances, and pH (instantaneous maximum only). The effluent limitations for these pollutants are less stringent than those in Order R5-2009-0095. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

   i. For waters where standards are not attained, CWA section 304(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 WLA's 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, aluminum, copper, methylene blue active substances, and pH because the receiving water is not listed as impaired on the 303(d) list for these constituents[1]. As discussed in section IV.D.4, below, relaxation of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the effluent limitations for aluminum, copper, and methylene blue active substances and relaxation of the effluent limitations for ammonia and pH from Order R5-2009-0095 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 R5-2009-0095 was issued indicates that aluminum, copper, and methylene blue active substances do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

   i. **Aluminum.** Effluent monitoring data collected between May 2011 and April 2014 indicates that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL or the NAWQC acute criterion.

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

ii. **Copper.** Effluent and receiving water monitoring data collected between May 2011 and April 2014 for copper indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

iii. **Methylene Blue Active Substances.** Effluent monitoring data collected between May 2011 and April 2014 indicates that methylene blue active substances in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL. Additionally, excess foaming has not been observed in the San Joaquin River in the vicinity of the outfall during the term of Order R5-2009-0095.

Thus, removal of the effluent limitations for aluminum, copper, and methylene blue active substances from Order R5-2009-0095 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

4. Antidegradation Policies

a. **Surface Water.** As discussed in section II.E of this II.E of this Fact Sheet, the Discharger is planning an upgrade and expansion project that would increase the design capacity of the Facility from 9.87 MGD to 17.5 MGD. Order R5-2009-0096 provided antidegradation findings and authorized an increase in the permitted average discharge flow to 17.5 MGD from the expanded Facility. This Order does not provide for an expansion from the previously authorized discharge rate of 17.5 MGD. 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 State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for aluminum, copper, and methylene blue active substances based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. Additionally, this Order relaxes the instantaneous maximum effluent limitation for pH to be consistent with the Basin Plan objective and relaxes the effluent limitations for ammonia based on updated pH and temperature data used to calculate the applicable 1999 NAWQC criteria for the protection of aquatic life. The removal and relaxation of WQBEL's for these parameters will not result in an increase in pollutant concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the relaxation of the effluent limitations does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal and relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

b. **Groundwater.** The Discharger's available groundwater monitoring data indicate that underlying groundwater concentration levels for some constituents (e.g. EC, TDS, 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 form 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 occuring in downgradient wells for EC/TDS and nitrate (as N).

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 occured. 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.

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 submitted Nutrient Management Plans in February 2013 and February 2014 indicating that in 2012 and 2013 total nitrogen loadings exceeded crop demands in some months and the agronomic hydraulic loading rate was periodically exceeded. The excess nitrogen loading was primarily due to the application of fertilizer and overwatering. Improved irrigation management practices should help to further reduce nitrate concentrations in the groundwater. The Discharger plans to adjust its irrigation practices to water fields more frequently, but at lower, more even rates, and to evaluate the feasibility of changing its cropping schedule for crops with more stable nutrient demands.

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 BOD_5 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 BOD_5 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 implemnting best management practices, which includes, but is not limited to, maintaining an irrigation system that allows even distribution of the BOD_5 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 and nitrate 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. Monitoring over future irrigation seasons will provide data for assessing any possible trends following improvement in the water quality of the irrigation water

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and percent removal requirements for BOD_5 and TSS. Restrictions on these parameters are discussed in section IV.B of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBEL's for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to 40 C.F.R. section 131.21(c)(1). 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-22. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Dry Weather Flow	MGD	9.87[2]/ 17.5[3]	--	--	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[4]	820	1,200	1,700	--	--	
	lbs/day[5]	1,500	2,200	3,000	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[4]	820	1,200	1,700	--	--	
	lbs/day[5]	1,500	2,200	3,000	--	--	
	% Removal	85	--	--	--	--	CFR
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	mg/L	2.1	4.4	--	--	--	NAWQC
	lbs/day[4]	170	360	--	--	--	
	lbs/day[5]	310	640	--			
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	mg/L	2.6	4.7	--	--	--	NAWQC
	lbs/day[4]	210	390	--	--	--	
	lbs/day[5]	380	690				
Diazinon and Chlorpyrifos	µg/L	[6]	--	[7]	--	--	TMDL
Electrical Conductivity @ 25°C	µmhos/cm	1,000[8]	--	--	--	--	PB
Methylmercury	grams/year	0.38[9]	--	--	--	--	TMDL
Nitrate plus Nitrite (as N)	mg/L	10	15.3	--	--	--	MCL
Temperature	°F	--	--	20[10]	--	--	TP
Total Coliform Organisms	MPN/100 mL	--	2.2[11]	23[12]	--	240	Title 22
Acute Toxicity	% Survival	70[13]/90[14]	--	--	--	--	BP
Chronic Toxicity	TUc	--	--	Narrative[15]	--	--	BP

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

[1] DC – Based on the design capacity of the Facility.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 C.F.R. part 133.
BP – Based on water quality objectives contained in the Basin Plan.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
TMDL – Based on the WLA in the applicable TMDL.
PB – Based on treatment plant performance.
MCL – Based on the Primary Maximum Contaminant Level.
Title 22 – Based on DDW Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] 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.

[3] 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] Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{D\ M-AVG}}{0.08} + \frac{C_{C\ M-AVG}}{0.012} \leq 1.0$$

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

[7] Average Weekly Effluent Limitation

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

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

[8] Applied as an annual average effluent limitation.

[9] The effluent calendar year annual methylmercury load shall not exceed 0.38 grams.

[10] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20ºF.

[11] Applied as a 7-day median effluent limitation.

[12] Not to be exceeded more than once in any 30-day period.

[13] 70% minimum of any one bioassay.

[14] 90% median for any three consecutive bioassays.

[15] There shall be no chronic toxicity in the effluent discharge.

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 one year. As discussed in section VI.B.7 of this Fact Sheet, the Central Valley Water Board is approving a compliance schedule longer than 1 year for methylmercury. The Compliance Schedule Policy requires that interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. Consistent with the Delta Mercury Contorl Program, this Order includes interim effluent limitations for total mercury based on Facility performance.

1. **Compliance Schedule Methylmercury.** This Order contains a new final effluent limitation for methylmercury based on the new objective 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 new limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury is established in the Order.

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

   The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The Discharger collected monthly monitoring for mercury and methylmercury during the term of Order R5-2009-0095. The Discharger has also developed and continues to implement a PPP for mercury, as required by Order R5-2009-0095.

   The compliance schedules are 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 waste load allocation 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 established in this Order. The interim limitations were determined as described in section IV.E.2., below, and are in effect until the final limitations take effect. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

2. **Interim Limits for Methylmercury.** 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) for effluent limitations for which compliance protection is intended.

   For mercury, 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.

   The interim limitations for total mercury in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9 percent of the data

points lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row). Therefore, the 99.9th percentile was determined using the mean plus 3.3 standard deviations of the available data.

Total mercury effluent data collected from May 2011 through April 2014 was used to determine performance-based interim effluent limitations. 12-month running mercury loads were calculated, the average and standard deviation of the 12-month running mercury loads were determined and used to calculate the 99.9th percentile.

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.

The following table summarizes the calculations of the interim effluent limitations for total mercury based on the Facility's current performance (May 2011 through April 2014). Since the Discharger upgraded the Facility to tertiary filtration in 2009, only total mercury data collected between September 2004 and October 2005, which is consistent with the date range used in the development of the WLA for this Facility in the Sacramento-San Joaquin Delta Methylmercury TMDL, is used to calculate th e performance-based interim limit established in this Order and is therefore consistent with the intent of the TMDL to not penalize dischargers for early actions to reduce mercury. **Effective immediately, and until 31 December 2030**, the effluent calendar annual total mercury load shall not exceed 90 grams. These interim effluent limitati ons shall apply in lieu of the final effluent limits for methylmercury.

Table F-23. Interim Effluent Limitation Calculation Summary

Parameter	Units	Maximum Effluent Concentration	Mean	Standard Deviation	Number of Samples	Interim Limitation
Mercury, Total Recoverable	grams/year	13	10	1.4	36	15[1]

[1] The interim total mercury limitation has been established as 90 grams/year, as discussed in the preceding paragraph.

F. Land Application Area 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, BOD_5, 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 BOD_5 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 BOD_5 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 Eckart 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-24).

Table F-24. Calendar Annual Average TDS concentrations applied to LAAs

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

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 concentrations and submit the evaluation by 1 May of that year The evaluation would 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, including additional BPTC evaluations to demonstrate the increased mass loading is consistent with the Antidegradation Policy (State Water Board Resolution 68-16). 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.

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. Title 22 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, and therefore, this Order contains reclamation requirements for the Title 22 tertiary level treated water supplied to the Discharger's clients. 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, dated March 2006, and Technical Report for use of recycled water, dated June 2008, which were reviewed and approved by DDW (formerly California Department of Public Health).

Treated wastewater discharged for reclamation purposes not specified in this Order must be approved by the Executive Officer, or regulated under separate waste discharge requirements, and must meet the requirements of CCR, Title 22.

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 ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents, bacteria, and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCL's in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent water quality objective necessary to ensure that the designated beneficial use is not adversely affected; however, as specified in the Basin Plan, the water quality "*objectives do not require improvement over naturally occurring background concentrations*." Therefore, this Order contains groundwater limitations for both natural background quality and water quality objectives that are necessary to protect the beneficial uses of the underlying groundwater. Thus, the water quality objectives define the least stringent limits that could apply as groundwater limitations except where natural background quality already exceeds the objective.

3. For natural background quality, the level of groundwater quality is dependant 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 No.R5-2009-0095. 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 443 mg/L to 893 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 the previous 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 evapotransporation (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 µmhos/cm to 1,700 µmhos/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 has been established 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. Furthermore, The Central Valley Water Board is currently implementing the CV SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. In the interim, this Order applies the site-specific objective for TDS for protection of groundwater.

b. **Nitrate.** Nitrate, which was found to be present in the groundwater at an average concentration range from 0.04 mg/L to 24.9 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-3 and MW-5. 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. It is therefore appropriate to adopt a numerical groundwater limitation of 10 mg/L for nitrate as nitrogen to implement the chemical constituents objective to protect the municipal and domestic use of groundwater.

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 submitted Nutrient Management Plans in February 2013 and February 2014 indicating that in 2012 and 2013 total nitrogen loadings exceeded crop demands in some months and the

agronomic hydraulic loading rate was periodically exceeded. The excess nitrogen loading was primarily due to the application of fertilizer and overwatering. Improved irrigation management practices should help to further reduce nitrate concentrations in the groundwater. The Discharger plans to adjust its irrigation practices to water fields more frequently, but at lower, more even rates, and to evaluate the feasibility of changing its cropping schedule for crops with more stable nutrient demands. This nitrate groundwater limit becomes effective **1 April 2020**, which allows the Discharger time to make additional improvements to its irrigation management practices to fully comply with the limit.

c. **pH.** pH, which ranged from 6.7 to 7.4 standard units in the domestic wastewater and from 4.45 to 11.53 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.

d.

5. 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. This Order allows a time schedule for the discharge to come into compliance with the groundwater limitations for nitrate as N.

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 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of management practices and schedules for methylmercury controls; and adoption of a mercury offset program for dischargers who cannot meet their load and wasteload allocations after implementing all reasonable load reduction strategies. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

b. **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 TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

d. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

e. **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 (AWWARF) titled, "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse" (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.

f. **Bay-Delta Plan South Delta Salinity Objectives Update.** The State Water Board is currently in the process of updating the South Delta Salinity Objectives contained in the Bay-Delta Plan. The updated salinity objectives may result in needed changes to the salinity requirements of this Order. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with changes to the Bay-Delta Plan.

g. **Dilution Credits/Mixing Zones.** As discussed in section IV.C.2.c of this Fact Sheet, this Order does not allow dilution credits or mixing zones for chronic aquatic life criteria for ammonia. If the Discharger conducts a dilution/mixing zone study demonstrating that dilution credits and mixing zones for chronic aquatic life criteria for ammonia comply with the requirements of Section 1.4.2 of the SIP, this Order may be reopened to adjust effluent limitations based on allowable dilution credits/mixing zones.

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 May 2011 through April 2014, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of **>1** TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "*EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.*" Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e.

toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-2), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with U.S. EPA guidance. Numerous guidance documents are available, as identified below:

i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.

ii. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.

iii. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition,* EPA 600/6-91/003, February 1991.

iv. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I,* EPA/600/6-91/005F, May 1992.

v. *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition,* EPA/600/R-92/080, September 1993.

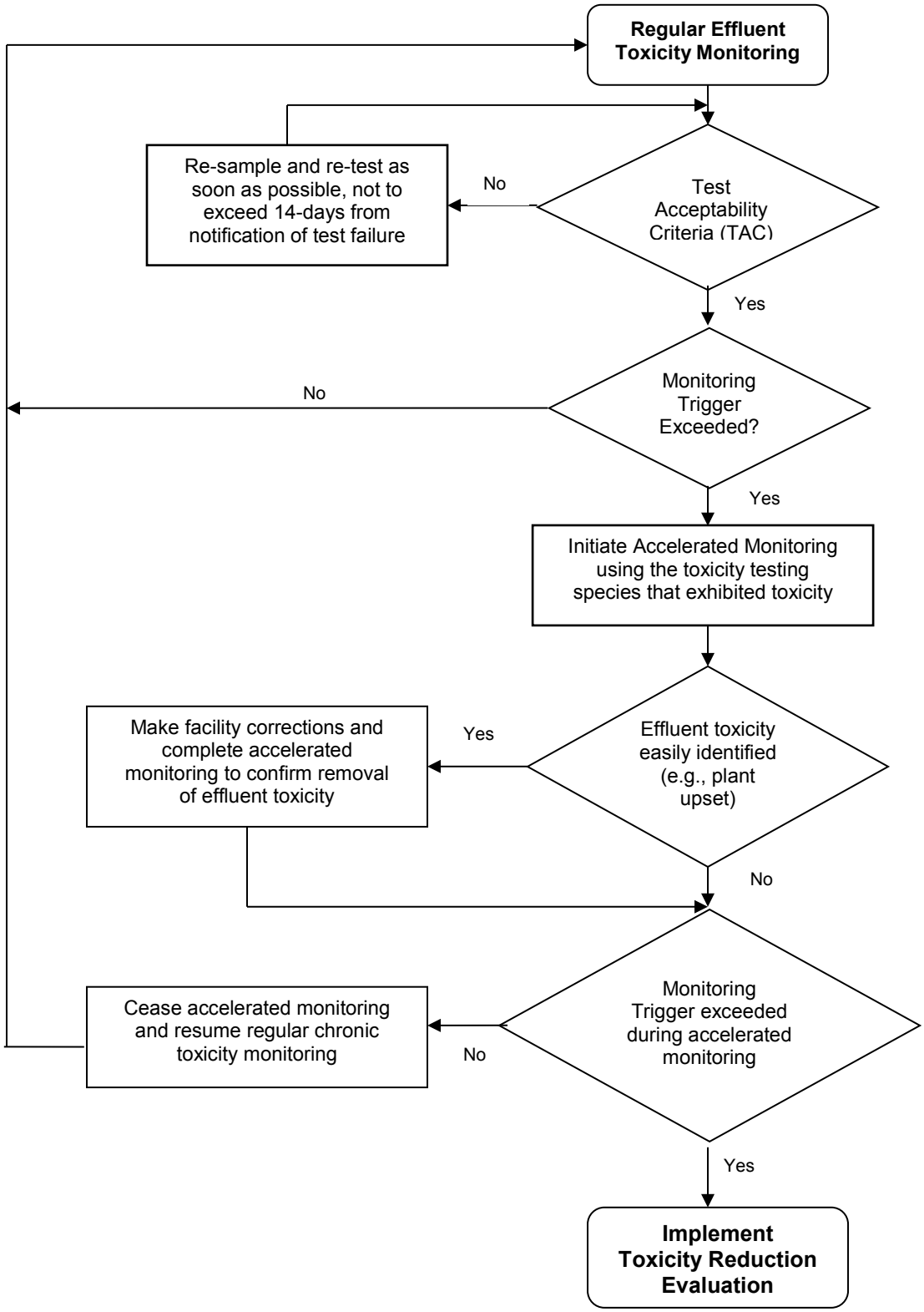
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition,* EPA 600/R-92/081, September 1993.

vii. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition,* EPA-821-R-02-012, October 2002.

viii. *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.

ix. *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991.

Figure F-2
WET Accelerated Monitoring Flow Chart



b. **Phase 1 Methylmercury Control Study.** The Basin Plan's Delta Mercury Control Program requires NPDES dischargers, working with other stakeholders, to conduct methylmercury control studies (Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and waste load allocations. Control studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. The Discharger has agreed to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Study).

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. The objective of the Control Studies is to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury load and wasteload allocations. In accordance with the Delta Mercury Control Plan, a work plan was submitted on **20 April 2013** by CVCWA on behalf of a group of POTWs in the region. The Central Valley Water Board commits to supporting an adaptive management approach. The adaptive management approach includes the formation of a Stakeholder Group(s) and a Technical Advisory Committee (TAC).

The study work plan will be reviewed and approval by the TAC and subsequently approved by the Executive Officer. The Discharger shall immediately implement the work plan upon Executive Officer approval, and a progress report shall be submitted by **20 October 2015**.

The Study shall evaluate the feasibility of reducing sources more than the minimum amount needed to achieve the methylmercury allocation. The Study also may include an evaluation of innovative actions, watershed approaches, offsets projects, and other short and long-term actions that result in reducing inorganic (total) mercury and methylmercury to address the accumulation of methylmercury in fish tissue and to reduce methylmercury exposure. The Study may evaluate the effectiveness of using inorganic (total) mercury controls to control methylmercury discharges. The Study shall include a description of methylmercury and/or inorganic (total) mercury management practices identified in Phase 1; an evaluation of the effectiveness; and costs, potential environmental effects, and overall feasibility of the control actions. The Study shall also include proposed implementation plans and schedules to comply with methylmercury allocations as soon as possible. The Study shall be submitted by **20 October 2018**.

The Executive Officer may authorize extending the Study due date. The Executive Officer may, after public notice, extend the due date up to 2 years if the Discharger demonstrates it is making significant progress towards developing, implementing and/or completing the Study and reasonable attempts have been made to secure funding for the Study, but the Discharger has experienced severe budget shortfalls.

3. Best Management Practices and Pollution Prevention

a. **Water Code Section 13263.3(d)(3) Pollution Prevention Plans.** PPP's for electrical conductivity and mercury are required to be implemented in this Order per Water Code section 13263.3(d)(1)(C). The pollution prevention plans required in sections VI.C.3.a and VI.C.3.c of this Order, shall, at a minimum, meet the requirements outlined in Water Code section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:

i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

iv. A plan for monitoring the results of the pollution prevention program.

v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

b. **Mercury Exposure Reduction Program.** The Basin Plan's Delta Mercury Control Program requires dischargers to participate in a Mercury Exposure Reduction Program. The Exposure Reduction Program is needed to address public health impacts of mercury in Delta fish, including activities that reduce actual and potential exposure of and mitigate health impacts to those people and communities most likely to be affected by mercury in Delta caught fish, such as subsistence fishers and their families. The Exposure Reduction Program must include elements directed toward:

i. Developing and implementing community-driven activities to reduce mercury exposure;

ii. Raising awareness of fish contamination issues among people and communities most likely affected by mercury in Delta-caught fish such as subsistence fishers and their families;

iii. Integrating community-based organizations that serve Delta fish consumers, Delta fish consumers, tribes, and public health agencies in the design and implementation of an exposure reduction program;

iv. Identifying resources, as needed, for community-based organizations and tribes to participate in the Program;

v. Utilizing and expanding upon existing programs and materials or activities in place to reduce mercury, and as needed, create new materials or activities; and

vi. Developing measures for program effectiveness.

This Order requires the Discharger to participate in a Mercury Exposure Reduction Program (MERP) in accordance with the Delta Mercury Control Program. The Discharger elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the Exposure Reduction Program is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the Exposure Reduction Program objective, elements, and the Discharger's coordination with other stakeholders. The Discharger shall integrate or, at a minimum, provide good-faith opportunities for integration of community-based organizations, tribes, and consumers of Delta fish into planning, decision making, and implementation of exposure reduction activities. The Discharger shall continue to participate in the group effort to implement the work plan.

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 and could impact UV dosage. 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 Light (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 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 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 offices 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/cm^2. Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm^2 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. **Pond Operating Requirements.** 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.

d. Consistent with Order R5-2009-0095, this Order requires treatment facilities to be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

5. Special Provisions for Municipal Facilities (POTW's Only)

a. **Pretreatment Requirements**

i. 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, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.

ii. The City has an approved EPA pretreatment program that has one non-categorical SIU and two categorical SIU's.

iii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or U.S. EPA may take enforcement actions against the Discharger as authorized by the CWA.

b. 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 Monitoring and Reporting Requirements for the General Order were amended by Water Quality Order WQ 2008-0002-EXEC on 20 February 2008. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

c. **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[1]) 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.

6. Other Special Provisions

a. Consistent with Order R5-2009-0095, this Order requires wastewater to be oxidized, coagulated, filtered, and adequately disinfected pursuant to DDW reclamation criteria, CCR, Title 22, division 4, chapter 3 (Title 22), or equivalent. 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 undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation.

b. **Phase IV Upgrade and Expansion Project.** The Discharger has requested to be permitted to expand discharge flows up to 17.5 MGD to the San Joaquin River. This Order permits the Discharger to discharge up to 17.5 MGD to the San Joaquin River upon compliance with requirements listed in section VI.C.6.b of this Order.

7. Compliance Schedules

In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The State Water Board's Resolution 2008-0025 "*Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*" (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed 10 years from the effective

[1] CalRecycle has proposed to define "anaerobically digestible material" to include inedible kitchen grease as defined in Food and Agricultural Code section 19216, food material as defined in California Code of Regulations, title 14, section 17852 and vegetative food material.

date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

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

- 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;
- Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have established;
- A proposed schedule for additional source control measures or waste treatment;
- Data demonstrating current treatment 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;
- The highest discharge quality that can reasonably be achieved until final compliance is attained;
- 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
- Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the infeasibility analyses, 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 new effluent limitations for methylmercury.

a. **Methylmercury.** The Delta Mercury Control Program is composed of two phases. Phase 1 spans from 20 October 2011 through the Phase I Delta Mercury Control Program Review, expected to conclude by October 2020. 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, wetland, and open-water habitats; and reducing total mercury loading to San Francisco Bay, as required by the *Water Quality Control Plan for the San Francisco Bay Basin*.

   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 waste load allocations after implementing all reasonable load reduction strategies. The review also will consider other potential public and environmental benefits and negative impacts (e.g., habitat restoration, flood protection, water supply, fish consumption) of attaining the allocations. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules 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 or by 20 October 2022, whichever occurs first, and ends in 2030. 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 "... a*n 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) requires 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 waste load allocations 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 new, 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. 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., BOD_5 and TSS reduction requirements). The monitoring frequencies and sample types for flow (continuous), BOD_5 (daily), TSS (daily), electrical conductivity (monthly), and total dissolved solids (monthly) have been retained from Order R5-2009-0095.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for flow (continuous), BOD_5 (daily), pH (daily), TSS (daily), mercury (monthly), temperature (continuous), dissolved oxygen (twice per month), total dissolved solids (monthly), electrical conductivity (monthly), ammonia (weekly), nitrate (weekly), nitrite (weekly), and methylmercury (monthly) have been retained from Order R5-2009-0095 to determine compliance with effluent limitations, where applicable, and characterize the effluent for these parameters.
3. Monitoring data collected over the term of Order R5-2009-0095 for aluminum, benzidine, chlorine residual, copper, methylene blue active substances, oil and grease, settleable solids, and standard minerals did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2009-0095.
4. Order R5-2009-0095 required monthly monitoring for bis (2-ethylhexyl) phthalate using “clean techniques”. As discussed in section IV.C.3.b of this Fact Sheet, bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment, and the Discharger indicated concerns regarding QA/QC issues with the contract laboratory that conducted the effluent monitoring for bis (2-ethylhexy) phthalate. Therefore, this Order requires monitoring for bis (2-ethylhexyl) phthalate twice per month for the first year of the permit term using clean techniques to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge and using an RL that meets the required SIP ML (i.e., 5 µg/L). The monitoring frequency shall be monthly thereafter.
5. This Order reduces the monitoring frequency for hardness from twice per month to quarterly. The Central Valley Water Board finds that this frequency is sufficient to characterize the effluent and provide information to adjust criteria for hardness-based metals.
6. Order R5-2009-0095 required monitoring for turbidity continuously at Monitoring Location EFF-001. This Order retains the monitoring frequency for turbidity, but moves the point of compliance from Monitoring Location EFF-001 to an internal compliance point following the filtration system and prior to the UV disinfection system (Monitoring Location FIL-001).
7. This Order includes effluent limitations for diazinon and chlorpyrifos based on the applicable TMDL for the Sacramento-San Joaquin Delta. Diazinon and chlorpyrifos were not detected in the effluent during the term of Order R5-2009-0095 and are not expected to be present in the Facility effluent. Therefore, this Order includes annual monitoring for

diazinon and chlorpyrifos to characterize the presence in the effluent and determine compliance with the applicable effluent limitations based on the TMDL.

8. 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.

9. 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 certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

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

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Order R5-2009-0095 required weekly acute toxicity testing. The effluent exhibited acute toxicity (<70% survival) in two of 202 samples collected during the term of Order R5-2009-0095; therefore, this Order only requires monthly 96-hour bioassay testing to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Consistent with Order R5-2009-0095, 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.

   This Order allows the Discharger to elect to participate in the Delta Regional Monitoring Program in lieu of conducting all or part of the individual receiving water monitoring required in the Monitoring and Reporting Program. If the Discharger

elects to cease individual receiving water monitoring and participate in the Delta Regional Monitoring Program, the Discharger shall submit a letter signed by an authorized representative to the Executive Officer informing the Central Valley Water Board that the Discharger will participate in the Delta Regional Monitoring Program and the date on which individual receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, will cease or be modified. Approval by the Executive Officer is required, and contingent on Delta Regional Monitoring Program Steering Committee action on the forthcoming Regional Monitoring Program monitoring plan.

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

If the Discharger begins to participate in the Delta Regional Monitoring Program in lieu of individual receiving water monitoring, the Discharger shall continue to participate in the Delta Regional Monitoring Program until such time as the Discharger informs the Board that participation in the Delta Regional Monitoring Program will cease and individual monitoring is reinstituted. Receiving water monitoring under Attachment E, Sections VIII.A.1 and VIII.A.2, is not required under this Order so long as the Discharger adequately supports the Delta Regional Monitoring Program. 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 at least equivalent to discontinued individual monitoring and study efforts. If a discharger or discharger group fails to maintain adequate participation in the Delta Regional Monitoring Program, as determined through criteria to be developed by the Delta Regional Monitoring Program Steering Committee, the Steering Committee will recommend to the Central Valley Water Board that an individual monitoring program be reinstated for that discharger or discharger group.

If the Discharger is participating in the Delta Regional Monitoring Program as described in Attachment E, Section VIII, the receiving water portion of the required Characterization Monitoring need not be conducted by the Discharger. Instead, data from the Delta Regional Monitoring Program will be utilized to characterize the

receiving water in the permit renewal. The Discharger may, however, conduct any site-specific receiving water monitoring deemed appropriate by the Discharger and submit that monitoring data with this Characterization Monitoring. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Historic receiving water monitoring data taken by the Discharger and from other sources may also be evaluated to determine whether or not that data is representative of current receiving water conditions. If found to be representative of current conditions, then that historic data may be used in characterizing receiving water quality for the purposes of Reasonable Potential analysis.

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 for dissolved oxygen (once every 2 weeks), pH (once every 2 weeks), temperature (once every 2 weeks), total dissolved solids (quarterly), and electrical conductivity (once every 2 weeks).

d. Receiving water monitoring requirements at Monitoring Location RSW-001 have been retained for mercury (quarterly) and methylmercury (quarterly).

e. Order R5-2009-0095 required receiving water monitoring for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002. This Order includes effluent limitations for total coliform organisms which are more stringent than the receiving water limitations for fecal coliform organisms. Compliance with the effluent limitations for total coliform organisms is expected to be protective of the receiving water limitation for fecal coliform organisms. Therefore, this Order discontinues receiving water monitoring for fecal coliform organisms.

f. This Order reduces the monitoring frequency for hardness from twice per month to quarterly. The Central Valley Water Board finds that this frequency is sufficient to characterize the receiving water and provide information to adjust criteria for hardness-based metals.

g. 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. This Order requires monitoring for priority pollutants and other pollutants of concern monthly during the third year of the permit term in the upstream receiving water, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See section IX.D of the Monitoring and Reporting Program (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

h. Receiving water monitoring requirements at Monitoring Location RSW-003 (formerly Monitoring Location RSW-005) have been retained for flow (continuous) and direction of flow (continuous).

2. Groundwater

a. Water Code section 13267 states, in part, "*(a) A Regional Water Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region*" and "*(b) (1) In conducting an investigation…, the Regional Water Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under*

penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, a Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution No. 68-16 and the Basin Plan.

c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.b of this Order. Biosolids disposal requirements are imposed pursuant to 40 C.F.R. part 503 to protect public health and prevent groundwater degradation.

2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2009-0095, this Order requires quarterly

monitoring for electrical conductivity and total dissolved solids and annual monitoring for standard minerals.

3. **UV Disinfection System Monitoring**

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

4. **Pond Monitoring**

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.

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

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

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the 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 Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following Notification was provided through through posting of a Notice of Public Hearing at the Facility, local City Hall, and at the public entrance to the Facility. The Notice of Public Hearing was also posted on the Central Valley Water Board's website

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:
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 2 March 2015.

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:	16/17 April 2015
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region Fresno Office 1685 E Street Fresno, CA 93706

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 aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

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

For instructions on how to file a petition for review, see
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

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 Dania Jimmerson at (916) 464-4742.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	14[1]	490[1]	200	750[2]	--	--	--	--	200	No[3]
Ammonia Nitrogen, Total (as N)	mg/L	2.65	0.2	2.37	5.62[2]	2.37[4]	--	--	--	--	Yes
Bis (2-ethylhexyl) Phthalate	µg/L	2.9	2	1.8	--	--	1.8	5.9	--	4	Inconclusive[3]
Copper, Total Recoverable	µg/L	6	3.4	8.2	12	8.2	1,300	--	10.4	1,000	No
Chloride	mg/L	110	130	230	860[2]	230[5]	--	--	--	250	No
Chlorpyrifos	µg/L	<0.065	<0.065	0.015	--	--	--	--	0.015	--	No[3]
Diazinon	µg/L	<0.062	<0.062	0.10	--	--	--	--	0.10	--	No[3]
1,2-Diphenylhydrazine	µg/L	0.3	<1	0.04	--	--	0.04	0.54	--	--	Inconclusive[3]
Electrical Conductivity @ 25°C	µmhos/cm	772[1]	714[1]	900	--	--	--	--	--	900	No
Heptachlor	µg/L	0.0054	<0.01	ND	0.52	0.0038	0.00021	0.00021	ND[6]	0.01	Inconclusive[3]
Iron, Total Recoverable	µg/L	44[1]	830[1]	300	--	--	--	--	300	300	No[3]
Manganese, Total Recoverable	µg/L	16[1]	149[1]	50	--	--	--	--	50	50	No[3]
Mercury, Total Recoverable	ng/L	2.71	7.18	50	--	--	50	51	--	2,000	No
Methylene Blue Active Substances	µg/L	53[1]	9.9[1]	500	--	--	--	--	--	500	No
Nitrate Nitrogen, Total (as N)	mg/L	12.8	4	10	--	--	--	--	--	10	Yes
Nitrite Nitrogen, Total (as N)	mg/L	0.79	0.2	1	--	--	--	--	--	1	No
Sulfate	mg/L	37[1]	93[1]	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	449[1]	435[1]	500	--	--	--	--	--	500	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential

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

Footnotes:
(1) Represents the maximum observed average annual concentration for comparison with the Secondary MCL or site-specific objective.
(2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
(3) See section IV.C.3 of the Fact Sheet (Attachment F) for a discussion of the RPA results.
(4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(5) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(6) Persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations.

ATTACHMENT H – CALCULATION OF WQBEL'S

Aquatic Life WQBEL's Calculations															
Parameter	Units	Criteria		Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC	CMC	CCC	ECA Multiplier$_{acute}$	LTA$_{acute}$	ECA Multiplier$_{chronic}$	LTA$_{chronic}$	AMEL Multiplier$_{95}$	AWEL Multiplier	MDEL Multiplier$_{99}$	AMEL[1]	AWEL[2]	MDEL[3]
Ammonia Nitrogen, Total (as N) (1 April – 30 November)	mg/L	5.62	2.37	--	--	0.19	1.0	0.64	1.52	2.05	4.23	--	2.1	4.4	--
Ammonia Nitrogen, Total (as N) (1 December – 31 March)	mg/L	5.62	4.23	--	--	0.28	1.6	0.75	3.16	1.66	3.02	--	2.6	4.7	--
Chlorpyrifos	µg/L	0.03	0.02	--	--	0.32	0.01	0.53	0.01	1.55	2.68	--	0.01	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	--

1 Average Monthly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 95th percentile occurrence probability.
2 Average Weekly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 98th percentile occurrence probability.
3 Maximum Daily Effluent Limitations are calculated according to Section 1.4 of the SIP using a 99th percentile occurrence probability.