CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER R5-2015-XXXX
NPDES NO. CA0078948

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

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

Table 1. Discharger Information

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

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	37° 27' 46"	121° 01' 57"	San Joaquin River

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 **[DATE]**.

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

Information describing the City of Turlock, Regional Water Quality Control Facility (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

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

A. Legal Authorities. This Order serves as 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 R5-2010-0002-01 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for 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.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001 (Discharges to San Joaquin River)

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]	1,668	2,502	3,336	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	1,668	2,502	3,336	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Priority Pollutants						
Bis (2-ethylhexyl) phthalate	µg/L	30	--	86	--	--
Carbon Tetrachloride	µg/L	4.2	--	8.5	--	--
Chlorodibromomethane	µg/L	7.6	--	12	--	--
Dichlorobromomethane	µg/L	11	--	17	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	~~1.6~~0.94	~~2.7~~2.1	--	--	--
	lbs/day[1]	~~267~~160	~~450~~350	--	--	--
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	2.1	4.7	--	--	--
	lbs/day[1]	350	784	--	--	--
Aluminum (total recoverable)	µg/L	350	820	--	--	--
Nitrate Nitrogen, Total (as N)	mg/L	31	38	--	--	--

[1] Based on a design flow of 20 million gallons per day (MGD).

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

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

   i. 0.011 mg/L, as a 4-day average; and
   ii. 0.019 mg/L, as a 1-hour average.

f. **Electrical Conductivity.** The effluent calendar year annual average electrical conductivity shall not exceed ~~1,100~~1,250 µmhos/cm.

g. **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.

h. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 20 MGD.

i. **Diazinon and Chlorpyrifos**

i. **Average Monthly Effluent Limitation**

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

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

ii. **Average Weekly Effluent Limitation**

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

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

j. **Mercury, Total.** The effluent calendar year annual average total mercury load shall not exceed 0.82 pounds/year.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications

1. Wastewater used for reclamation shall be treated such that it complies with Title 22 CCR, Section 60301.230 ("*Disinfected Tertiary Recycled Water*").
2. Public contact with the reclaimed water shall be precluded or controlled through such means as fences, signs, or other acceptable alternatives.
3. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities, and these shall be of a type, or secured in a manner, that permit operation by authorized personnel only.
4. Reclaimed water shall be used in compliance with Title 22, Division 4, Chapter 3, Article 3, *Uses of Recycled Water* and this Order.
5. The production, distribution, and use of recycled water shall conform to an Engineering Report prepared pursuant to Title 22, section 60323 and approved by the Division of Drinking Water.
6. The Discharger shall maintain compliance with the following ~~effluent~~ recycled water limitations at Discharge Points 002 and 003, with compliance measured at Monitoring Locations REC-001 and REC-002, as described in the attached MRP.

a. **Total Coliform Organisms.** ~~Effluent~~ Recycled water total coliforms shall not exceed:

i. 2.2 MPN/100 mL, as a 7-day median;

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

iii. 240 MPN/100 mL for any single sample.

b. **Turbidity**. Effluent turbidity shall not exceed any of the following:

i. An average of 2 NTU within a 24-hour period;

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

iii. 10 NTU 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:**
   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
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; and
   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 natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
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 storage, treatment, or disposal component associated with the Facility shall not cause or contribute to, in combination with other sources of the waste constituents, groundwater within influence of the Facility to contain:
    a. Taste or odor-producing constituents, toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses;
    b. Waste constituent concentrations in excess of water quality objectives or background water quality, whichever is greater; and

c. Waste constituent concentrations in excess of the concentrations specified below or background water quality, whichever is greater:

i. Total coliform organisms shall not exceed 2.2 MPN/100 mL over any 7-day period.

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

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a numeric or narrative 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 WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. **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. **Mixing Zone/Dilution Study for pH.** If the Discharger provides a mixing zone/dilution study supporting the application of dilution credits for pH that is consistent with the mixing zone requirements and guidance in the Basin Plan and U.S. EPA guidance, this Order may be reopened to modify the effluent limitations for pH.

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 in this Order. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with changes to the Bay-Delta Plan.

i. **Basin Plan Amendment – Salinity Objectives for the Lower San Joaquin River.** The Central Valley Water Board has a current proposal for the consideration of a

Basin Plan Amendment which would establish salinity water quality objectives on the Lower San Joaquin River from Merced River to Vernalis. Therefore, this Order may be reopened to modify salinity requirements, as appropriate in accordance with the proposed Basin Plan Amendment.

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. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. 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. **Mixing Zone Validation Study**. The Discharger shall conduct a mixing zone validation study to verify the results of the mixing zone study performed by the Discharger. The mixing zone study shall be completed in accordance with the 18 August 2014 *Mixing Zone Field Study Work Plan* and submitted to the Regional Water Board on or before **1 April 2016**.

c. **Groundwater Water Quality Characterization**. The Discharger shall characterize natural background quality of monitored constituents in a technical report, to be submitted by **1 February 2018**. For each groundwater monitoring parameter identified in the Monitoring and Reporting Program, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10), and shall be based on data from at least twelve consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations in the compliance monitoring wells with the calculated background concentration.
In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. The technical report shall be prepared by or under the direction of appropriately qualified professional(s) and shall bear the professional's signature and stamp.

d. **Best Practical Treatment or Control (BPTC)**. If the groundwater monitoring results show that the discharge of waste is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality, then by **1 May 2018** the Discharger shall submit a BPTC Evaluation Workplan that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the facilities' waste management system to determine best practicable treatment or control for each the waste constituents of concern. The workplan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. The technical report shall be prepared by or under the direction of appropriately qualified professional(s) and shall bear the professional's signature and stamp.

3. Best Management Practices and Pollution Prevention

a. **Salinity Source Control Program.** The Discharger shall continue to implement a Salinity Source Control Program, and update as necessary. The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the San Joaquin River. The annual 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. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

b. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, the turbidity of the filter effluent shall not exceed:

i. 2 NTU as a daily average;
ii. 5 NTU more than 5 percent of the time within a 24-hour period; and
iii. 10 NTU, at any time.

c. **Emergency Storage Basin Operating Requirements.** When discharges to the emergency storage basin occur, the Discharger shall ensure compliance with the following operation and maintenance requirements:

i. Objectionable odors originating at the Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

ii. The emergency storage basin shall be managed to prevent breeding of mosquitoes. In particular:

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

(b) Weeds shall be minimized; and

(c) Vegetation, debris, and dead algae shall not accumulate on the water surface.

(d) The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

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

iv. Freeboard in the emergency storage basin shall not be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the emergency storage basin, no overflow of the emergency storage basin occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation

with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

5. Special Provisions for 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. The Discharger shall implement, as more completely set forth in 40 C.F.R. section 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

(a) Wastes which create a fire or explosion hazard in the treatment works;

(b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

(c) Solid or viscous in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

(d) Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the

treatment works, and subsequent treatment process upset and loss of treatment efficiency;

(e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Water Board approves alternate temperature limits;

(f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference of pass through;

(g) Pollutants which result in the presence of toxic gases, vapors, or fumes, within the treatment works in a quantity that may cause acute worker health and safety problems; and:

(h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.

v. The Discharger shall implement, as more completely set forth in 40 C.F.R. section 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

(a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or:

(b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

vi. **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. The Discharger is encouraged to comply with the "*Manual of Good Practice for Agricultural Land Application of Biosolids,"* developed by the California Water Environment Association.

vi. Biosolids Storage Requirements

(a) Facilities for the storage of Class B biosolids shall be located, designed, and maintained to restrict public access to biosolids.

(b) Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.

(c) Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

(d) Biosolids storage facilities shall be designed, maintained, and operated to minimize the generation of leachate.

vii. **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.** The Discharger is currently accepting anaerobically digestible material for injection into an anaerobic digester for co-digestion. **Within 180 days of the permit effective date**, the Discharger shall develop and implement standard operating procedures (SOP's) for this activity. 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 State Water Board's Division of Drinking Water (DDW; formerly the Department of Public Health) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

7. Compliance Schedules – Not Applicable.

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. Aluminum Effluent Limitations (Section IV.A.1.a). Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

C. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.i). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and

reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.

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

D. 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 wet weather related 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) when wet weather was not observed (i.e., no daily rainfall totals greater than 0.1 inches).

E. Total Coliform Organisms Effluent Limitations (Section IV.A.1.f). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.

F. Total Residual Chlorine Effluent Limitations (Section IV.A.1.d). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with Section IV Standard Provisions (Attachment D).

G. 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.

H. 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.

I. 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.

J. Annual Average Effluent Limitations (Sections IV.A.2.a). Compliance with the calendar year annual average effluent limitations for electrical conductivity 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. 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.

L. 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.

M. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c). The Facility provides a high level of treatment including tertiary filtration and nitrification, which results in minimal dissolved oxygen impacts in the receiving water. Weekly receiving water monitoring is required in the Monitoring and Reporting Program (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this Order. Weekly receiving water monitoring data, measured at monitoring locations RSW-001 and RSW-002, will be used to determine compliance with part "c" of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in the San Joaquin River to be reduced below 7 mg/L at any time. However, should more frequent dissolved oxygen and temperature receiving water monitoring be conducted, Central Valley Water Board staff may evaluate compliance with parts "a" and "b".

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.

Biosolids
Sewage sludge that has been treated and tested and shown to be capable of being beneficially and legally sued as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities as specified under 40 C.F.R. Part 503.

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.

Reporting Level (RL)
The ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

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.

Sewage Sludge
The solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a municipal wastewater treatment facility. Sewage sludge includes solids removed or used during primary, secondary, or advanced wastewater treatment processes. Sewage sludge does not include grit or screening material generated during preliminary treatment or domestic sewage at a municipal wastewater treatment facility.

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

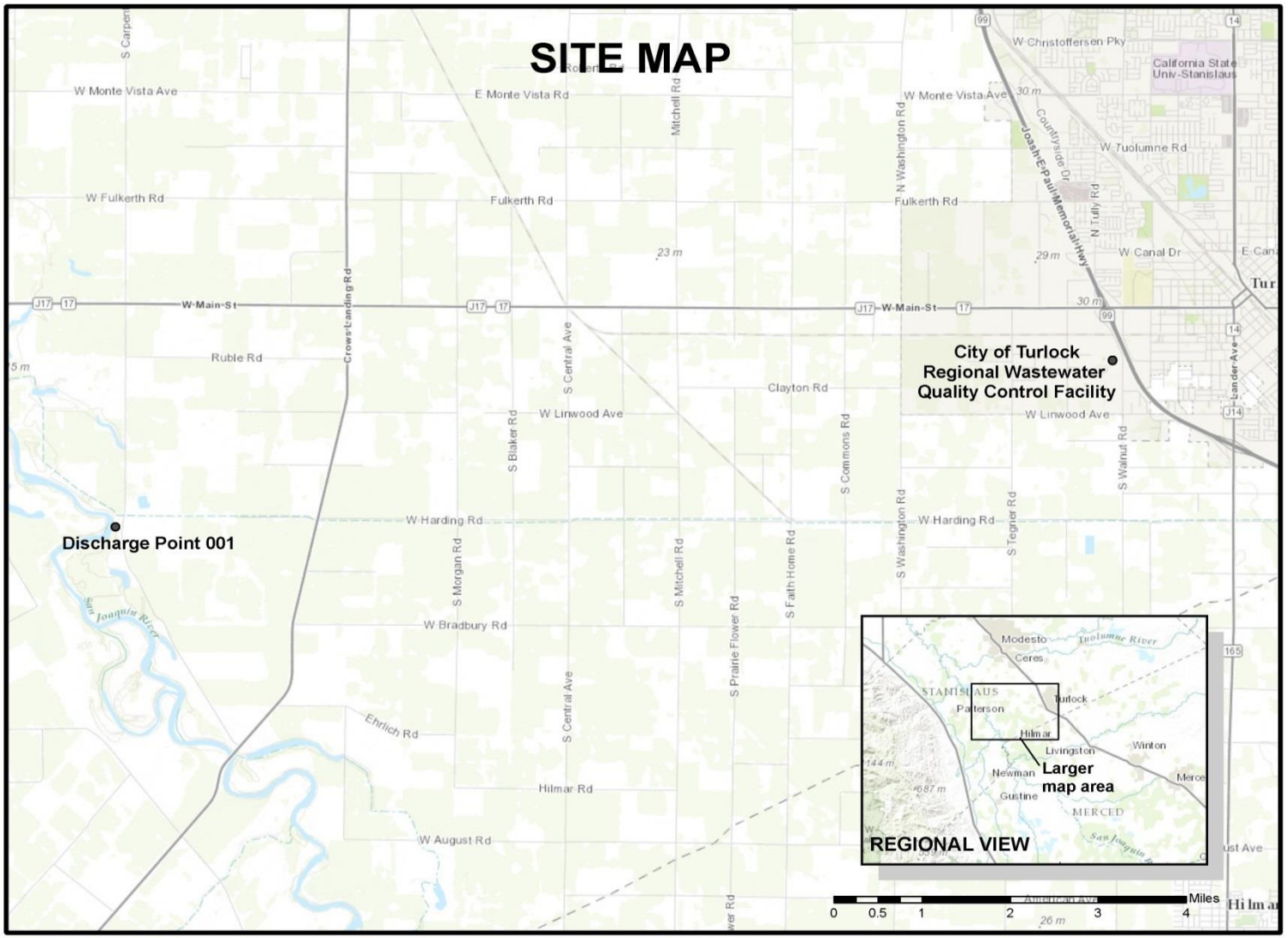
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

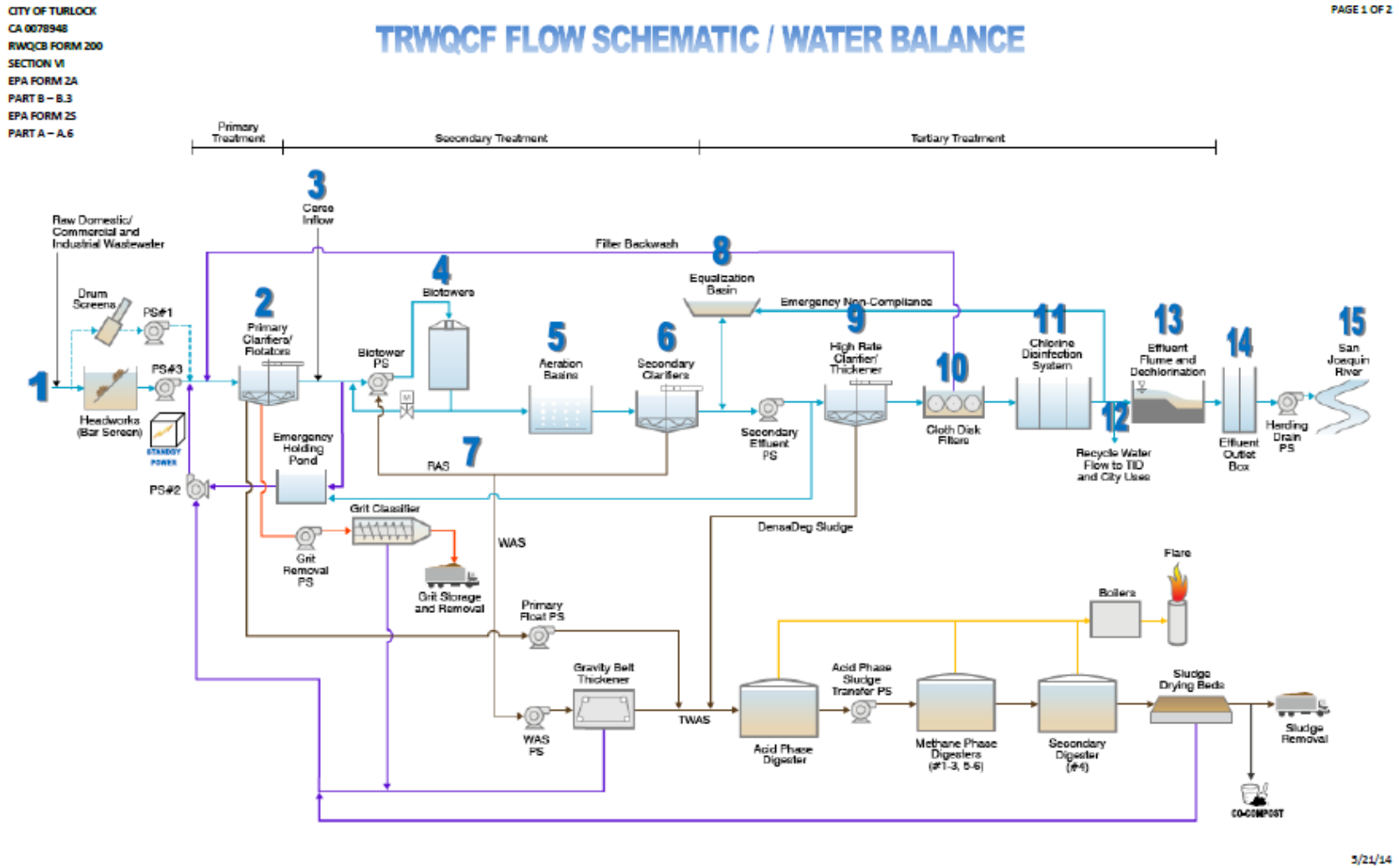
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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).

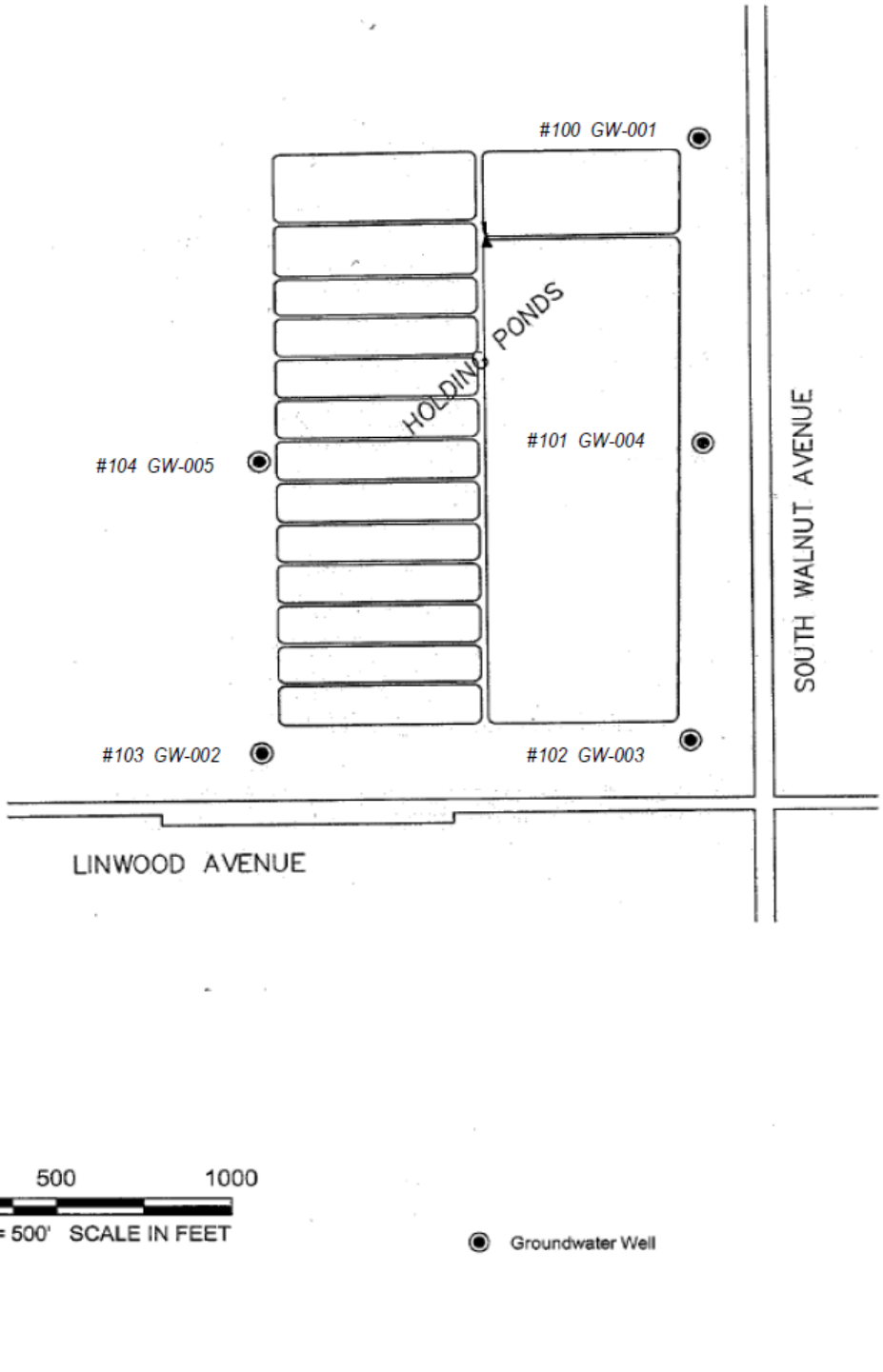
ATTACHMENT B – MAP



ATTACHMENT C.1 – FLOW SCHEMATIC



ATTACHMENT C.2 - GROUNDWATER MONITORING WELL LOCATIONS



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 Board as 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 subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 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

B. 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 influent into the Facility can be collected.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being discharged into the San Joaquin River. Latitude: 37° 27' 46" Longitude: 121° 01' 57"
--	PND-001	A location where a representative sample of the contents of the Emergency Storage Basin can be collected.
--	GW-001	Upgradient groundwater monitoring well.
--	GW-002, GW-003	Downgradient groundwater monitoring well.
--	GW-004, GW-005	Side-gradient groundwater monitoring wells
--	RSW-001	San Joaquin River 1,800 feet above Discharge Point 001.
--	RSW-002	San Joaquin River downstream of Discharge Point 001 and 50 feet above the confluence with Harding Drain.
--	BIO-001	A location where a representative sample of the biosolids can be collected.
--	REC-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being used for reclamation at the Walnut Energy Center.
--	REC-002	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being used for reclamation at the Pedretti Sports Complex
--	SPL-001	A location where a representative sample of the municipal water supply can be collected.

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	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/Day	[2]
pH	standard units	Grab[3]	1/Day	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Day	[2]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	µmhos/cm	Grab[3]	1/Week	[2]
Total Dissolved Solids	mg/L	Grab[3]	1/Week	[2]

[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] 24-hour flow proportional composite.
[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	Meter	Continuous[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	[2,5,6]
Carbon Tetrachloride	µg/L	Grab	1/Month	[2,6]
Chlorodibromomethane	µg/L	Grab	1/Month	[2,6]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dichlorobromomethane	µg/L	Grab	1/Month	[2,6]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[2,6,7]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	24-hr Composite[1]	1/Month	[2]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,8]	[2]
	lbs/day	Calculate	1/Week	
Chlorine, Total Residual	mg/L	Meter	Continuous	[2,9]
Chlorpyrifos	µg/L	24-hr Composite[1]	1/Year	[2,10]
Diazinon	µg/L	24-hr Composite[1]	1/Year	[2,10]
Dissolved Oxygen	mg/L	Grab	1/Week	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[2]
Hardness, Total (as $CaCO_3$)	mg/L	24-hr Composite[1]	1/Month[11]	[2]
Mercury (methyl)	ng/L	Grab	1/Month	[2,7]
Nitrate Nitrogen, Total (as N)	mg/L	24-hr Composite[1]	1/Month	[2]
Nitrite Nitrogen, Total (as N)	mg/L	24-hr Composite[1]	1/Month	[2]
Nitrate Plus Nitrite (as N)	mg/L	24-hr Composite[1]	1/Month	[2]
Temperature	~~°F and~~ °C	Grab	1/Day[3,4]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	1/Day[12]	[2]
Total Dissolved Solids	mg/L	Grab	1/Week	[2]
Turbidity	NTU	Meter	Continuous	[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] 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.
[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.C).
[7] Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury.
[8] Concurrent with whole effluent toxicity monitoring.
[9] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.
[10] Chlorpyrifos and diazinon shall be sampled using EPA Method 625M, Method 8141, or equivalent GC/MS method.
[11] Hardness samples shall be collected concurrently with metals samples.
[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 Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions[1] (%)					Control
	100	**75**	**50**	**25**	**12.5**	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

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

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location PND-001

1. The Discharger shall monitor the emergency storage basin (when in use) at Monitoring Location PND-001 as follows:

Table E-5. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen[1]	mg/L	Grab	1/Week	--
Freeboard	Feet	Measure	1/Week	--
Levee Condition	--	Observation	1/Week	--
Odors	--	Observation	1/Week	--
Flow to Basin	MG/Event	Calculated	1/Event	--

[1] Samples shall be collected opposite pond inlet.

VII. RECYCLING MONITORING REQUIREMENTS

A. Monitoring Locations REC-001 and REC-002

1. The Discharger shall monitor reclaimed water at Monitoring Location REC-001 as follows:

Table E-6. Recycling Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	Grab	1/Day	--
Total Suspended Solids	mg/L	Grab	1/Day	--
Total Coliform Organisms	MPN/ 100 mL	Grab	1/Day	--
Turbidity	NTU	Meter	Continuous	--

B. RECYCLED WATER USE AREA MONITORING REQUIREMENTS

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

   The following shall be recorded for each user with additional reporting for use areas as appropriate. The frequency of use area inspections shall be based on the complexity and risk of each use area. Use area monitoring shall include the following parameters:

Table E-7. Recycled Water Use Area Monitoring Requirements

Parameter	Units	Sample Type	Sampling Frequency [1]	Reporting Frequency
Recycled Water User				Annually
Recycled Water Flow	MGD	Meter [2]	Continuous	Annually
Acreage Applied [3]	acres	Calculated	--	Annually
Application Rate	inches/acre/year	Calculated	--	Annually
Soil Saturation/Ponding	--	Observation	Quarterly	Annually
Nuisance Odors/Vectors	--	Observation	Quarterly	Annually

Parameter	Units	Sample Type	Sampling Frequency [1]	Reporting Frequency
Discharge Off-Site	--	Observation	Quarterly	Annually
Notification Signs [4]	--	Observation	Quarterly	Annually

1. Or less frequently if approved by the Central Valley Regional Water Board Executive Officer.
2. Meter requires meter reading a pump runtime, or other approved method.
3. Acreage applied denotes the acreage to which recycled water is applied.
4. Notification signs shall be consistent with the requirements of Title 22 section 60310 (g).

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall implement the Receiving Water Monitoring Requirements in Attachment E, Section VIII.A of this Order. However, the Central Valley Water Board hereby authorizes the Discharger to participate ~~in lieu of conducting the individual monitoring specified in Attachment E, Section VIII.A of this Order (including visual observations) the Discharger may elect to participate~~ in the Delta Regional Monitoring Program or a regional monitoring program for the Lower San Joaquin River as it becomes available~~[1]~~ in lieu of conducting the individual monitoring specified in Attachment E, Section VIII.A 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, Section VIII.A 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 ~~Written~~ approval of the Discharger's request.~~, by the Executive Officer, is required prior to discontinuing part or all of individual receiving water monitoring.~~ However, a~~A~~pproval 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, ~~R~~receiving water monitoring under Attachment E, Section VIII.A, 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, Section VIII.A, 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.

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

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 and RSW-002

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

Table E-8. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
Flow	CFS	--	1/Week[2]	--
Conventional Pollutants				
pH	standard units	Grab	1/Week[3]	[4]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month[3]	[4]
Dissolved Oxygen	mg/L	Grab	1/Week	[4]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[4]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Quarter	[4]
Temperature	~~°F and~~ °C	Grab	1/Week[3]	[4]
Turbidity	NTU	Grab	1/Week	[4]

[1] Constituents with weekly sampling frequency may be reduced to monthly at RSW-001 when the San Joaquin River is at "monitor stage" (river elevation is at 48.0 feet (15,242 cfs) at the West Main Bridge near Patterson (SJP) gauging station) and all monitoring is not required while the San Joaquin River is at "flood stage" (river elevation is at 54.7 feet at the SJP gauging station).

[2] The Discharger shall report the upstream receiving water flow at the San Joaquin River near Crows Landing

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method

(SCL) gauging station. If data for the SCL gauging station is unavailable, the Discharger shall calculate and report the upstream receiving water by subtracting the effluent flow from the downstream receiving water flow at the SJP gauging station.

[3] Temperature and pH shall be collected at the same time as the ammonia sample.

[4] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136.

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 receiving water conditions shall be summarized in the monitoring report.

B. Monitoring Locations GW-001 through GW-005

1. The groundwater monitoring wells are shown in Attachment C-2 shall be sampled and analyzed according to the Table below. All samples shall be collected using approved EPA methods. The Discharger shall monitor the groundwater elevation in existing monitoring wells GW-001(#100), GW-002 (#103), GW-003 (#102), GW-004 (#101), and GW-005 (#104), and shall collect samples for constituents from monitoring wells GW-001, GW-002, and GW-003. 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. Samples shall be collected and analyzed using standard USEPA methods. Groundwater monitoring shall include, at a minimum, the following:

Table E-9. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Depth to Groundwater	±0.01 feet	Measurement	1/Quarter
Groundwater Elevation [1]	±0.01 feet	Calculated	1/Quarter
Gradient	feet/feet	Calculated	1/Quarter
Gradient Direction	degrees	Calculated	1/Quarter
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter[3]
Total Dissolved Solids	mg/L	Grab	1/Quarter[3]
Fixed Dissolved Solids	mg/L	Grab	1/Quarter[3]
pH	standard units	Grab	1/Quarter[3]
Total Coliform Organisms	MPN/100 mL	Grab	1/Quarter[3]
Total Nitrogen	mg/L	Grab	1/Quarter[3]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter[3]
Ammonia (as NH_4)	mg/L	Grab	1/Quarter[3]
Total Kjeldahl Nitrogen	mg/L	Grab	1/Quarter[3]
Standard Minerals[2]	µg/L	Grab	1/Year[3]

[1] Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed

Parameter	Units	Sample Type	Minimum Sampling Frequency

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

[3] Only required at GW-001, GW-002, and GW-003.

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. 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[1]	Required Analytical Test Method
Total Dissolved Solids	mg/L	--	1/Quarter	[2]
Electrical Conductivity @ 25°C	µmhos/cm	--	1/Quarter	[2]
Standard Minerals[3]	mg/L	--	2/year	[2]

[1] If the water supply is from more than one source, the results shall be reported as a weighted average and include copies of supporting calculations. Alternatively, the Discharger may composite individual grab samples on a flow-weighted basis from multiple locations to represent the water supply within the service area. Composited samples must be taken in accordance with the sample handling and preservation requirements specified in 40 C.F.R. part 136.

[2] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136.

[3] Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

C. Effluent and Receiving Water Characterization (2017)

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 Table E-11, 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.

   The Discharger may cease monitoring for the following constituents if they are non-detect in the first 3 monthly samples: total cyanide, asbestos, dioxin, and EPA Method 608 PCBs and chlorinated pesticides.

2. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

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

Table E-11. 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[2]	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[2]	µg/L	Grab	0.5
Dichlorobromomethane[2]	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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[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
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
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]	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[2]	µg/L	24-hr Composite[3]	--
Antimony	µg/L	24-hr Composite[3]	5
Arsenic	µg/L	24-hr Composite[3]	10
Asbestos	µg/L	24-hr Composite[3]	--
Barium	µg/L	24-hr Composite[3]	--
Beryllium	µg/L	24-hr Composite[3]	2
Cadmium	µg/L	24-hr Composite[3]	0.5
Chromium (III)	µg/L	24-hr Composite[3]	50
Chromium (VI)	µg/L	24-hr Composite[3]	10
Copper	µg/L	24-hr Composite[3]	10
Cyanide	µg/L	24-hr Composite[3]	5
Fluoride	µg/L	24-hr Composite[3]	--
Iron	µg/L	24-hr Composite[3]	--
Lead	µg/L	24-hr Composite[3]	5
Mercury[2]	µg/L	~~24-hr Composite[3]~~Grab	0.5
Manganese	µg/L	24-hr Composite[3]	--
Molybdenum	µg/L	24-hr Composite[3]	--
Nickel	µg/L	24-hr Composite[3]	20
Selenium	µg/L	24-hr Composite[3]	5
Silver[2]	µg/L	24-hr Composite[3]	0.25
Thallium	µg/L	24-hr Composite[3]	1
Tributyltin	µg/L	24-hr Composite[3]	--
Zinc	µg/L	24-hr Composite[3]	20
4,4'-DDD	µg/L	24-hr Composite[3]	0.05
4,4'-DDE	µg/L	24-hr Composite[3]	0.05
4,4'-DDT	µg/L	24-hr Composite[3]	0.01

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
alpha-Endosulfan	µg/L	24-hr Composite[3]	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite[3]	0.01
Alachlor	µg/L	24-hr Composite[3]	--
Aldrin	µg/L	24-hr Composite[3]	0.005
beta-Endosulfan	µg/L	24-hr Composite[3]	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite[3]	0.005
Chlordane	µg/L	24-hr Composite[3]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[3]	0.005
Dieldrin	µg/L	24-hr Composite[3]	0.01
Endosulfan sulfate	µg/L	24-hr Composite[3]	0.01
Endrin	µg/L	24-hr Composite[3]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[3]	0.01
Heptachlor	µg/L	24-hr Composite[3]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[3]	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[3]	0.5
PCB-1016	µg/L	24-hr Composite[3]	0.5
PCB-1221	µg/L	24-hr Composite[3]	0.5
PCB-1232	µg/L	24-hr Composite[3]	0.5
PCB-1242	µg/L	24-hr Composite[3]	0.5
PCB-1248	µg/L	24-hr Composite[3]	0.5
PCB-1254	µg/L	24-hr Composite[3]	0.5
PCB-1260	µg/L	24-hr Composite[3]	0.5
Toxaphene	µg/L	24-hr Composite[3]	--
Atrazine	µg/L	24-hr Composite[3]	--
Bentazon	µg/L	24-hr Composite[3]	--
Carbofuran	µg/L	24-hr Composite[3]	--
2,4-D	µg/L	24-hr Composite[3]	--
Dalapon	µg/L	24-hr Composite[3]	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	24-hr Composite[3]	--
Di(2-ethylhexyl)adipate	µg/L	24-hr Composite[3]	--
Dinoseb	µg/L	24-hr Composite[3]	--
Diquat	µg/L	24-hr Composite[3]	--
Endothal	µg/L	24-hr Composite[3]	--
Ethylene Dibromide	µg/L	24-hr Composite[3]	--
Methoxychlor	µg/L	24-hr Composite[3]	--
Molinate (Ordram)	µg/L	24-hr Composite[3]	--
Oxamyl	µg/L	24-hr Composite[3]	--
Picloram	µg/L	24-hr Composite[3]	--
Simazine (Princep)	µg/L	24-hr Composite[3]	--
Thiobencarb	µg/L	24-hr Composite[3]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[3]	--
2,4,5-TP (Silvex)	µg/L	24-hr Composite[3]	--
Diazinon[2]	µg/L	24-hr Composite[3]	--
Chlorpyrifos[2]	µg/L	24-hr Composite[3]	--
Ammonia (as N)[2]	mg/L	Grab~~24-hr Composite[3]~~	--
Boron[2]	µg/L	24-hr Composite[3]	--
Chloride[2]	mg/L	24-hr Composite[3]	--
Flow	MGD	Meter	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Hardness (as $CaCO_3$) [2]	mg/L	24-hr Composite[3]~~Grab~~	--
Foaming Agents (MBAS)	µg/L	Grab	--
Mercury, Methyl[2]	ng/L	Grab	--
Nitrate (as N)[2]	mg/L	24-hr Composite[3]	--
Nitrite (as N)	mg/L	24-hr Composite[3]	--
pH	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite[3]	--
Specific conductance (EC) [2]	µmhos/cm	24-hr Composite[3]	--
Sulfate	mg/L	24-hr Composite[3]	--
Sulfide (as S)	mg/L	24-hr Composite[3]	--
Sulfite (as SO_3)	mg/L	24-hr Composite[3]	--
Temperature[2]	~~ºF and~~ ºC	Grab	--
Total Dissolved Solids (TDS) [2]	mg/L	Grab~~24-hr Composite[3]~~	--

[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] 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 and receiving water sampling.

[3] 24-hour flow through proportional composite.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

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

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

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

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program 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, quarterly,

semiannual, and annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

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

Table E-12. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Daily	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
Weekly	Permit effective date	Sunday through Saturday	Submit with monthly SMR
Monthly	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
Quarterly	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
Annually	Permit effective date	1 January through 31 December	1 February of following year
1/Discharge Event	Permit effective date	All	Submit with monthly SMRs

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

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

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

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

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

value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

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

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

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

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

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

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

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

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the 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 SMRs for which sample analyses were performed.

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

   a. **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.D 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 SMRs. The mass loading shall be calculated as follows:

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

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

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

f. **Total Calendar Year Annual Mass Loading Mercury Effluent Limitation**. The Discharger shall calculate and report the total calendar year annual mercury mass loading for the effluent in the December SMR. The total calendar year annual mass loading shall be calculated as specified in Section VII.C of the Limitations and Discharge Requirements.

g. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall ~~calculate and~~ report monthly in the self-monitoring report~~: i)~~ the dissolved oxygen concentrations measured in the effluent (EFF-001) and in the receiving water (RSW-001 and RSW-002).~~, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.~~

h. **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.

i. **Temperature Receiving Water Limitations**. The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

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

k. **Groundwater Monitoring Reports.** The reports shall be prepared by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities, and shall bear the professional's signature and stamp. Each quarterly report shall contain:

i. Results of the 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 this Order. 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 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. 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.~~At any time during the term of this permit, the State Water Board or Central Valley Water Board may notify the Discharger to electronically submit DMR's. Until such notification is given specifically for the electronic submittal of DMR's, the Discharger shall submit DMR's in accordance with the requirements described below.~~

~~2. DMR's must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:~~

~~STANDARD MAIL~~	~~FEDEX/UPS/ OTHER PRIVATE CARRIERS~~
~~State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000~~	~~State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814~~

~~3. All discharge monitoring results must be reported on the official U.S. EPA pre-printed DMR forms (EPA Form 3320-1) or on self-generated forms that follow the exact same format of EPA Form 3320-1.~~

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-13. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Mixing Zone Validation Study (Special Provision VI.C.2.b)	**1 April 2016**
Salinity Source Control Program (Special Provision VI.C.3.a)	**1 June**, annually
Compliance Schedule for Final Effluent Limitations for Electrical Conductivity, Treatment or Alternative Salinity Reduction Method Workplan (Special Provision VI.C.7.a)	**1 June 2015**
Compliance Schedule for Final Effluent Limitations for Electrical Conductivity, Annual Progress Reports (Special Provision VI.C.7.a)	**1 June,** annually
Groundwater Water Quality Characterization	**1 February 2018**
Best Practical Treatment or Control (BPTC)	**1 May 2018**

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, or TRE/TIE as 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 in compliance with SMR reporting requirements described in subsection X.B above.

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, E10 and E-11. 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-11.

   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-11 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. 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. 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. 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. **Water Recycling/ Reuse Annual Report**. 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 (e.g., landscape, golf course irrigation, etc.). The annual report shall be submitted to the Central Valley Water Board by **1 July** 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	5C500108001
CIWQS Facility Place ID	266737
Discharger	City of Turlock
Name of Facility	Regional Water Quality Control Facility
Facility Address	901 S. Walnut Road
	Turlock, CA 95380
	Stanislaus County
Facility Contact, Title and Phone	Michael Cooke, Municipal Services Director, (209) 668-5590
Authorized Person to Sign and Submit Reports	Michael Cooke, Municipal Services Director, (209) 668-5590
Mailing Address	156 South Broadway Ave, Suite 270, Turlock, CA 95380
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Recycling Requirements	Producer – 2.0 million gallons per day (MGD) of recycled water for cooling purposes to the Walnut Energy Center and an average of 100,000 GPD to Pedretti Sports Complex for turf irrigation.
Facility Permitted Flow	20 MGD, average dry weather flow
Facility Design Flow	20 MGD, average dry weather flow
Watershed	Middle San Joaquin – Lower Merced – Lower Stanislaus
Receiving Water	San Joaquin River
Receiving Water Type	Inland surface water

A. The City of Turlock (hereinafter Discharger) is the owner and operator of the City of Turlock, Regional Water Quality Control Facility (hereinafter Facility), a POTW.

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

B. The Facility discharges wastewater to the San Joaquin River, a water of the United States, within the Middle San Joaquin-Lower Merced-Lower Stanislaus watershed. The Discharger was previously regulated by Order R5-2010-0002-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078948 adopted on 28 January 2010, amended on 3 August 2012, and expired on 1 January 2015. 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 5 June 2014. The application was deemed complete on 9 June 2014. A site visit was conducted on 18 July 2014 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

~~**C.**~~**D.** The Discharger was issued Time Schedule Order (TSO) R5-2014-0901 by the Central Valley Water Board on 22 July 2014 providing compliance schedules and interim effluent limitations for copper, selenium, carbon tetrachloride, nitrate, silver, and aluminum that were effective through 31 December 2014, and compliance schedules and interim effluent limitations for dichlorobromomethane and chlorodibromomethane effective through 31 December 2019.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the City of Turlock and the community service districts of Denair and Keyes, and receives up to 2 MGD of primary treated effluent from the City of Ceres. The Facility serves a population of approximately 88,000 and 12 significant industrial users (SIUs). The design average dry weather flow capacity of the Facility is 20 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

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

Order R5-2010-0002-01 allowed for discharges to both the Harding Drain and the San Joaquin River upon completion of a dedicated pipeline to transport and discharge treated wastewater from the Facility directly to the San Joaquin River. The Discharger completed the project and began discharging to the San Joaquin River in July 2014, and has ceased discharging to Harding Drain. This Order only authorizes discharges to the San Joaquin River at Discharge Point 001.

Solids handling consists of gravity belt thickener, anaerobic digestion, sludge drying beds and beneficial reuse of biosolids via land application to farmland and co-compost for public distribution.

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

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 21, T5S, R10E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to the San Joaquin River, a water of the United States at a point latitude 37° 27' 46" N and longitude 121° 01' 57" W.

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

Effluent limitations contained in Order R5-2010-0002-01 for discharges to Harding Drain and representative monitoring data from the term of Order R5-2010-0002-01 are summarized in Table F-2, below. Effluent limitations contained in Order R5-2010-0002-01 for discharges to the San Joaquin River are summarized in Table F-3, below.

Table F-2. Historic Effluent Limitations and Monitoring Data – Discharges to Harding Drain

Parameter	Units	Effluent Limitation			Monitoring Data (April 2010 – April 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 25°C)	mg/L	10	15	20	2.9	4.3	7.0
	lbs/day[1]	1,668	2,502	3,336	238	358	546
	% Removal	85	--	--	99.3[2]	--	--
pH	standard units	--	--	6.5 – 8.5	--	--	6.3 – 8.1
Total Suspended Solids	mg/L	10	15	20	7.9	8.7	12
	lbs/day[1]	1,668	2,502	3,336	585	680	892.4
	% Removal	85	--	--	98.3[2]	--	--
Priority Pollutants							
Copper, Total Recoverable	µg/L	8.9	--	15	8.5	--	8.5
Selenium, Total Recoverable	µg/L	3.7	--	9.1	0.43	--	0.43
	lbs/day[1]	0.62	--	1.52	0.26	--	0.26
Carbon Tetrachloride	µg/L	0.25	--	0.72	0.5	--	0.5
Chlorodibromomethane	µg/L	0.41	--	0.78	12.8	--	12.8
Dichlorobromomethane	µg/L	0.56	--	0.81	41.9	--	41.9
Non-Conventional Pollutants							

Parameter	Units	Effluent Limitation			Monitoring Data (April 2010 – April 2014)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Aluminum, Total Recoverable	µg/L	200[3]	--	--	261[4]	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1	3.5	--	4.4
	lbs/day[1]	183	--	350	58.3	--	304.6
Electrical Conductivity @25°C	µmhos/cm	1,000[5]/ 700[6]	979[7]	--	1,023[8]/ 1,014[9]	963[4]	--
Mercury, Total Recoverable	lbs/year	0.82[10]	--	--	0.115[11]	--	--
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	20.8	--	--
Total Coliform Organisms	MPN/ 100 mL	--	2.2[12]	23[13]/240[14]	--	--	80
Acute Toxicity	% Survival	--	--	70[15]/90[16]	--	--	90[17]/90[18]
Chronic Toxicity	TUc	--	--	[19]	--	--	8
Total Residual Chlorine	mg/L	0.011[20]	--	0.019[21]	--	--	0.72
Average Dry Weather Flow	MGD	--	--	20[22]	--	--	10.4[23]

NR = Not Reported

1 Based on a design flow of 20 MGD.
2 Represents the minimum reported percent removal based on data from February 2011 through April 2014.
3 Applied as an annual average effluent limitation.
4 Represents the maximum observed annual average concentration.
5 Applied as a monthly average from 1 September to 31 March. Final effluent limitation effective 28 July 2022 (all water year types, except critically dry) or 28 July 2026 (critically dry water years).
6 Applied as a monthly average from 1 April through 31 August. Final effluent limitation effective 28 July 2022 (all water year types, except critically dry) or 28 July 2026 (critically dry water years).
7 Applied as an annual average effluent limitation. Interim effluent limitation effective until 28 July 2022 (all water year types, except critically dry) or 28 July 2026 (critically dry water years).
8 Represents the maximum reported monthly average from 1 September to 31 March.
9 Represents the maximum reported monthly average from 1 April through 31 August.
10 The total annual mass discharge of total mercury shall not exceed 0.82 pounds.
11 Represents the maximum observed total annual mercury discharged.
12 Applied as a 7-day median effluent limitation.
13 Not to be exceeded more than once in any 30-day period.
14 Applied as an instantaneous maximum effluent limitation.
15 Minimum reported for any one bioassay.
16 Median for any three consecutive bioassays.
17 Represents lowest reported minimum for one bioassay.
18 Represents lowest reported median for three consecutive bioassays.
19 There shall be no chronic toxicity in the effluent discharge.
20 Applied as a 4-day average effluent limitation.
21 Applied as a 1-hour average effluent limitation.
22 The average dry weather flow shall not exceed 20 MGD.
23 Maximum average dry weather flow.

Table F-3. Historic Effluent Limitations – Discharges to the San Joaquin River [1]

Parameter	Units	Effluent Limitation		
		Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (5-day @ 25°C)	mg/L	10	15	20
	lbs/day[2]	1,668	2,502	3,336
	% Removal	85	--	--
pH	standard units	--	--	6.5 – 8.5
Total Suspended Solids	mg/L	10	15	20
	lbs/day[2]	1,668	2,502	3,336
	% Removal	85	--	--
Copper, Total Recoverable	µg/L	8.9	--	15
Lead, Total Recoverable	µg/L	2.6	--	3.9
Selenium, Total Recoverable	µg/L	3.7	--	9.1
	lbs/day[2]	0.62	--	1.52
Silver, Total Recoverable	µg/L	1.2	--	2.3
Carbon Tetrachloride	µg/L	4.2	--	12
Chlorodibromomethane	µg/L	7.6	--	14
Dichlorobromomethane	µg/L	11	--	16
Aluminum, Total Recoverable	µg/L	261	200[3]	750
Ammonia Nitrogen, Total (as N)	mg/L	1.1	--	2.1
	lbs/day[2]	183	--	350
Boron, Total Recoverable	µg/L	0.8[4]/1.0[5]	--	2.0[4]/2.6[5]
Chloride	mg/L	203	--	328
Electrical Conductivity @25°C	µmhos/cm	1,000[6]/700[7]	979[8]	--
Iron, Total Recoverable	µg/L	300[3]	--	--
Manganese, Total Recoverable	µg/L	50[3]	--	--
Mercury, Total Recoverable	lbs/year	0.82[9]	--	--
Nitrate Nitrogen, Total (as N)	mg/L	31	--	--
Total Coliform Organisms	MPN/ 100 mL	--	2.2[10]	23[11]/240[12]
Acute Toxicity	% Survival	--	--	70[13]/90[14]
Chronic Toxicity	TUc	--	--	[15]
Total Residual Chlorine	mg/L	0.01[16]	--	0.02[17]
Average Dry Weather Flow	MGD	--	--	20[18]

Parameter	Units	Effluent Limitation		
		Average Monthly	Average Weekly	Maximum Daily

[1] Discharges to the San Joaquin River did not occur until July 2014. Therefore, limited data for discharges at Discharge Point 002 was available at the time this Order was drafted.
[2] Based on a design flow of 20 MGD.
[3] Applied as an annual average effluent limitation.
[4] Applicable 15 March through 15 September
[5] Applicable 16 September through 14 March.
[6] Applied as a monthly average from 1 September to 31 March. Final effluent limitation effective 28 July 2022 (all water year types, except critically dry) or 28 July 2026 (critically dry water years).
[7] Applied as a monthly average from 1 April through 31 August. Final effluent limitation effective 28 July 2022 (all water year types, except critically dry) or 28 July 2026 (critically dry water years).
[8] Applied as an annual average effluent limitation. Interim effluent limitation effective until 28 July 2022 (all water year types, except critically dry) or 28 July 2026 (critically dry water years).
[9] The total annual mass discharge of total mercury shall not exceed 0.82 pounds.
[10] Applied as a 7-day median effluent limitation.
[11] Not to be exceeded more than once in any 30-day period.
[12] Applied as an instantaneous maximum effluent limitation.
[13] Minimum for any one bioassay.
[14] Median for any three consecutive bioassays.
[15] There shall be no chronic whole effluent toxicity in the effluent discharge.
[16] Applied as a 4-day average effluent limitation.
[17] Applied as a 1-hour average effluent limitation.
[18] The average dry weather flow shall not exceed 20 MGD.

D. Compliance Summary

1. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2011-0530 on 14 March 2011 which proposed to assess a civil liability of $3,000 against the Discharger for effluent violations of chlorine residual that occurred on 20 January 2010. The Discharger paid the mandatory minimum penalty of $3,000.

2. The Central Valley Water Board issued ACL Complaint No. R5-2013-0505 on 11 January 2013 which proposed to assess a civil liability of $3,000 against the Discharger for effluent violations of chlorine residual and pH that occurred during the period of 2 February 2011 to 8 June 2012. The Discharger paid the mandatory minimum penalty of $3,000.

3. The Central Valley Water Board issued ACL Complaint No. R5-2014-0517 on 7 March 2014 which proposed to assess a civil liability of $6,000 against the Discharger for effluent violations of dichlorobromomethane that occurred during the period of 8 July 2013 to 31 July 2013. The Discharger paid the mandatory minimum penalty of $6,000.

E. Planned Changes

The Discharger is evaluating the feasibility of a pipeline project called the North Valley Regional Recycled Water Program (NVRRWP) which would convey 33,000 acre-feet of tertiary treated wastewater from the Facility and the City of Modesto Water Quality Control Facility to the Delta Mendota Canal (DMC) for use as irrigation water by the Del Puerto Water District on the west side of the San Joaquin Valley. The NVRRWP would provide irrigation water for approximately 10,966 acres of prime agricultural land

generating approximately $67.5 million per year within the region's economy. The project, if implemented, would reduce the reliance on unsustainable area groundwater supplies south of the Delta and on pumped Delta water supplies. The NVRRWP would meet the recycled water goals and mandates of the State of California and moves towards goals of reducing discharge to surface waters.

The Discharger is in the process of gathering data regarding existing receiving water conditions in the DMC and planning the pipeline construction phase of the project. The Discharger and the fellow participants in the NVRRWP are in the process of obtaining funding from the State Revolving Fund. Upon implementation of the NVRRWP, the Discharger may discontinue or reduce discharges to the San Joaquin River.

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

   a. **Basin Plan**. The Central Valley Water Board adopted the 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.~~.~~ Beneficial uses applicable to the San Joaquin River from the mouth of the Merced River to Vernalis are as follows:

Table F-4. Basin Plan Beneficial Uses

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

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 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 applicable Endangered Species Act.

8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that *"the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective"*.

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

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

9. **Storm Water Requirements.** 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 listing for the San Joaquin River (Merced River to Tuolumne River) includes: alpha-BHC, boron, chlorpyrifos, DDE, DDT, electrical conductivity, group A pesticides, mercury, temperature, and unknown toxicity.

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. Table F-5, below, identifies the 303(d) listings and the status of each TMDL.

Table F-5. 303 (d) List for the San Joaquin River (Merced River to Tuolumne River)

Pollutant	Potential Sources	TMDL Completion[1]
alpha-BHC	Source Unknown	(2022)
Boron	Agriculture	2007
Chlorpyrifos	Agriculture	2007
DDE	Agriculture	(2011)
DDT	Agriculture	(2011)
Electrical Conductivity	Agriculture	2007
Group A Pesticides	Agriculture	(2011)
Mercury	Resource Extraction	(2012)
Temperature	Source Unknown	(2021)
Unknown Toxicity	Source Unknown	(2022)

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

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

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

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

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §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 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. Part 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 C.F.R. section 122.41 et seq. that requires the proper design and operation of treatment facilities.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133.

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

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

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (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.x~~i~~ 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.** The Facility was designed to provide a tertiary level of treatment for up to a design average dry weather flow of 20 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 20 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-6. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	20[1]	--	--	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-Day @ 20°C)[3]	mg/L	30	45	--	--	--
	lbs/day[2]	5,000	7,500	--	--	--
	% Removal	85	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH[3]	standard units	--	--	--	6.0	9.0
Total Suspended Solids[3]	mg/L	30	45	--	--	--
	lbs/day[2]	5,000	7,500	--	--	--
	% Removal	85	--	--	--	--

1 The average dry weather flow shall not exceed 20 MGD.
2 Based upon an average dry weather flow of 20 MGD.
3 More stringent WQBEL's are applicable to the discharge and are included in this Order, as described further in section IV.C.3 of this Fact Sheet.

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

1. Scope and Authority

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

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

b. **Effluent and Ambient Background Data.** The RPA, as described in section IV.C.3 of this Fact Sheet, was based on data collected between April 2010 and April 2014, which includes effluent and ambient background data submitted in SMRs and ROWD.

c. **Assimilative Capacity/Mixing Zone**

i. **Regulatory Guidance for Dilution Credits and Mixing Zones**. The Discharger has requested mixing zones and dilution credits for compliance with human health water quality criteria. The Central Valley Water Board has the discretion to accept or deny mixing zones and dilution credits. The CWA directs the states to adopt water quality standards to protect the quality of its waters. U.S. EPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 C.F.R. §122.44 and §122.45). The U.S. EPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the SIP and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Central Valley Water Board may use the U.S. EPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001)(TSD).

For non-Priority Pollutant constituents the allowance of mixing zones by the Central Valley Water Board is discussed in the Basin Plan, *Policy for Application of Water Quality Objectives*, which states in part, "*In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not*

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

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

For completely-mixed discharges, Section 1.4.2.1 of the SIP states, "*For completely-mixed discharges, as determined by the RWQCB and based on information provided by the discharger, the amount of receiving water available to dilute the effluent shall be determined by calculating the *dilution ratio (i.e., the critical receiving water flow divided by the effluent flow) using the appropriate flows in Table 3. In no case shall the RWQCB grant a dilution credit that is greater than the calculated dilution ratio. The dilution credit may be set equal to the dilution ratio only if the site-specific conditions concerning the discharge and the receiving water do not indicate that a smaller dilution credit is necessary to protect beneficial uses and meet the conditions of this Policy. If, however, dilution ratios that are calculated using the Table 3 parameters are inappropriate for use due to site-specific issues, the mixing zone and dilution credit shall be determined using site-specific information and procedures detailed for incompletely-mixed discharges.*"

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*]

The mixing zone is thus an administrative construct defined as an area around the outfall that may exceed water quality objectives, but is otherwise protective of the beneficial uses. Dilution is defined as the amount of mixing that has occurred at the edge of this mixing zone under critical conditions, thus protecting the beneficial uses at the concentration and for the duration and frequency required.

ii. **Dilution/Mixing Zone Study Results**. The Discharger provided a 16 June 2009 *City of Turlock Water Quality Control Facility – San Joaquin River Discharge Mixing Zone Study and Requested Amendment to Tentative Order, NPDES No. CA0078948* (Larry Walker Associates) providing the results of a dilution/mixing zone study. Using the Cornell Mixing Zone Expert System (CORMIX) model, the point of complete mixing downstream of the Discharger's proposed discharge to the San Joaquin River was estimated. A summary of the primary data inputs to the CORMIX model are provided below:

(a) A value of 100 feet (30.5 meters) was estimated for river width; the cross section geometry was estimated using aerial photo width measurements.

(b) River depths were estimated under a number of selected design/critical flows using Manning's equation.

(c) The effluent concentration was arbitrarily specified equal to 100 mg/L. In CORMIX, this value (or any other reference value) can be used in the absence of actual effluent concentration data. This means that some of the CORMIX-calculated concentrations along the longitudinal dimension of the plume (i.e., along the stream reach) are lower than the arbitrarily selected effluent concentration and are simply used to calculate the CORMIX dilution ratio.

(d) The proposed outfall cross-section was estimated to be 2 meters wide by 0.2 meters deep, which corresponds to the maximum permitted flow rate.

Two primary model scenarios were run: 1) one corresponding to a harmonic mean flow of the San Joaquin River (617 cubic feet per second[1]) for use in evaluating potential dilution for human carcinogens consistent with the SIP, and 2) one corresponding to the 30Q10 critical low flow of the San Joaquin River (180 cubic feet per second) for use in evaluating potential dilution for human health criteria for nitrate (Use of the 30Q10 low flow is consistent with the USEPA TSD recommendations for noncarcinogens)[2]. For each scenario, the model estimated the distance downstream to achieve complete mix and the

[1] Harmonic mean flow calculated using USEPA's DFLOW software for the period of 1981 through 2008.
[2] The TSD states that because the effects of noncarcinogens are more often associated with shortened exposures, EPA suggests the use of the 30Q5 critical low flow. The 30Q10 proposed by the Discharger would generally result in a more conservative (i.e., lower) critical flow.

dilution available at the first downstream monitoring location, 400 meters from the discharge point into the San Joaquin River.

According to the report, initial mixing at the point of discharge is momentum and buoyancy based; complete mixing is then achieved more slowly through dispersion as the narrow plume hugs the eastern bank of the San Joaquin River. For human carcinogens the results of the study indicates that the edge of the mixing zone where complete mixing occurs in the San Joaquin River is 3,048 meters (just under 2 miles) downstream of the discharge point to the San Joaquin River. The width and depth of the mixing zone is approximately 30.48 meters and 0.93 meters, respectively. For nitrate, the results of the study indicates that the edge of the mixing zone where complete mixing occurs is 3,007 meters (almost 1.9 miles) downstream of the discharge point to the San Joaquin River. The width and depth of the mixing zone is approximately 30.48 meters and 0.57 meters, respectively.

For human carcinogen criteria the SIP recommends using the harmonic mean receiving water flow and the long-term arithmetic mean effluent flow[1] to calculate a dilution credit (SIP at Section 1.4.2.1). Based on the harmonic mean flow of 617 cubic feet per second (cfs) or 398 MGD of the San Joaquin River, and the design discharge flow of 20 MGD, a dilution credit of 19.9 may be allowed for the calculation of WQBEL's for human carcinogen criteria.

For nitrate, using the 30Q10 (180 cfs or 116 MGD) and the design discharge flow of 20 MGD, a dilution ratio of up to 5.8:1 may be allowed for the calculation of WQBEL's. However, the size of the mixing zone can be reduced to be consistent with Facility performance, resulting in a dilution factor of 2.4. Thus reflecting a mixing zone at which a performance-based effluent limitation can be achieved. The edge of the mixing zone representing the dilution factor of 2.4 is 29.7 meters (just under 100 feet) downstream of the outfall to the San Joaquin River. The width and depth of the mixing zone is approximately 7.3 meters and 0.57 meters, respectively.

The previous Order required the Discharger to conduct a mixing zone confirmation study after initiation of the discharge to the San Joaquin River. The Discharger submitted a mixing zone work plan on 18 August 2014 and has begun the study. This Order requires the Discharger to complete the study and submit the mixing zone confirmation study results by 1 April 2016. This Order may be reopened based on the results of the study.

iii. **Evaluation of Available Dilution for Human Carcinogen Criteria and Human Health Criteria (Nitrate plus Nitrite)**. Section 1.4.2.2 of the SIP, provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for protection of human health, the TSD states that, "...*the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure*

[1] Design average dry weather flow of 20 MGD used to calculate dilution credit for human carcinogens.

pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes." There are no drinking water intakes in the human carcinogen mixing zone or the human health criteria mixing zone. The human carcinogen criteria mixing zone meets the requirements of the SIP as follows:

(a) *Shall not compromise the integrity of the entire waterbody* - The TSD states that, "*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats*." The human health mixing zone is not applicable to aquatic life criteria. The proposed human health mixing zone is approximately 2 miles long, constituting a small fraction of the total river reach. The human health mixing zone does not compromise the integrity of the entire waterbody.

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

(c) *Shall not restrict the passage of aquatic life* – The human health mixing zone is not applicable to aquatic life criteria, and the narrow plume hugs the eastern bank of the San Joaquin River. Therefore, the mixing zone will not restrict the passage of aquatic life.

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

(e) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – The allowance of a human health mixing zone will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance. This Order requires end-of-pipe effluent limitations (e.g., for BOD_5 and TSS) and discharge prohibitions to prevent these conditions from occurring.

(f) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The human health mixing zone is small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zone does not overlap mixing zones as there are no other outfalls or mixing zones in the vicinity of the discharge. The City of Modesto discharge is located approximately 5.5 miles downstream from Discharge Point 001. The downstream edge of the mixing zone is approximately 3.5 miles upstream from

the City of Modesto discharge location; therefore an overlap of mixing zones does not occur.

(g) *Shall not be allowed at or near any drinking water intake* – There are no drinking water intakes within the human health mixing zone. The discharges enters the San Joaquin River just over 28 miles upstream of the nearest drinking water supply (in the Delta downstream of Vernalis). The human health criteria mixing zone extends just over 3,000 meters downstream of the discharge. There is significant dilution, much more than allowed in this Order, prior to any drinking water intake within the Delta.

The human carcinogen mixing zone therefore complies with the SIP. The mixing zone also complies with the Basin Plan, which requires that the mixing zone not adversely impact beneficial uses. Beneficial uses will not be adversely affected for the same reasons discussed above. In determining the size of the mixing zone, the Central Valley Water Board considered the procedures and guidelines in the EPA's *Water Quality Standards Handbook, 2d Edition* (updated July 2007), Section 5.1, and Section 2.2.2 of the TSD. The SIP incorporates the same guidelines.

iv. **Final Dilution Credits.** The final dilution credits and associated mixing zones lengths for each pollutant receiving dilution credit(s) are summarized in the table below. The dilution credits allowed in this Order are in accordance with Section 1.4.2.2 of the SIP and are a discretionary act by the Central Valley Water Board.

Table F-7. Final Dilution Credits

Parameter	Units	Human Health Dilution Credit	Human Health Mixing Zone/Distance Downstream (meters)
Bis (2-ethylhexyl) Phthalate	mg/L	19.9	3,048
Carbon Tetrachloride	mg/L	19.9	3,048
Chlorodibromomethane	mg/L	19.9	3,048
Dichlorobromomethane	mg/L	19.9	3,048
Nitrate Nitrogen, Total (as N)	mg/L	2.4	29.7

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

(a) Mixing zones are allowed under the SIP provided all elements contained in Section 1.4.2.2 are met. The Central Valley Water Board has determined that these factors are met.

(b) Section 1.4.2.2.of the SIP requires mixing zones to be as small as practicable. The Central Valley Water Board has determined the mixing zone is as small as practicable.

(c) In accordance with Section 1.4.2.2 of the SIP, the Board has determined the mixing zone is as small as practicable, will not compromise the integrity of the entire water body, restrict the

passage of aquatic life, dominate the water body or overlap existing mixing zones from different outfalls. The mixing zone is small relative to the large size of the receiving water, is not at or near a drinking water intake, and does not overlap a mixing zone from a different outfall.

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

(e) The Central Valley Water Board has determined the discharge will not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under the federal or State endangered species laws, because the mixing zone is for human health criteria only, is relatively small, and acutely toxic conditions will not occur in the mixing zone. The discharge will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum, produce objectionable odor, taste, or turbidity, cause objectionable bottom deposits, or cause nuisance, because the proposed Order establishes end-of-pipe effluent limitations (e.g., for BOD_5 and TSS) and discharge prohibitions to prevent these conditions from occurring.

(f) As required by the SIP, in determining the extent of or whether to allow a mixing zone and dilution credit, the Central Valley Water Board has considered the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zone and dilution credit is adequately protective of the beneficial uses of the receiving water.

(g) The Central Valley Water Board has determined mixing zone complies with the SIP for priority pollutants.

(h) The mixing zone study indicates the maximum allowed dilution factor to be 19.9 for human health constituents. Section 1.4.2.2B of the SIP, in part states, *"The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements."*

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

(j) The Central Valley Water Board has determined that allowing dilution factors that exceed those proposed by this Order would not comply with the State Anti-degradation Policy for receiving waters outside the allowable mixing zone for bis (2-ethylhexyl) phthalate, chlorodibromomethane, dichlorobromomethane, carbon tetrachloride, and nitrate. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of Resolution 68-16 states:

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

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

(l) The Central Valley Water Board also determined establishing effluent limitations for bis (2-ethylhexyl) phthalate, chlorodibromomethane, dichlorobromomethane, carbon tetrachloride, and nitrate that have been adjusted for dilution credits is consistent with Section 1.4.2.2B of the SIP that requires the Central Valley Water Board to shall deny or significantly limit a mixing zone and dilution credits as necessary to comply with other regulatory requirements.

Therefore, the Central Valley Water Board has determined the effluent limitations established in the Order for bis (2-ethylhexyl) phthalate, chlorodibromomethane, dichlorobromomethane, carbon tetrachloride, and nitrate that have been adjusted for dilution credits are appropriate and necessary to comply with the Basin Plan, SIP, Federal anti-degradation regulations and Resolution 68-16.

d. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* and the *National Toxics Rule* 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 CFR § 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

[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. 131.38 § (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 CFR § 131.38(b)(2).
[7] For this discussion all hardness values are measured as $CaCO_3$.

From May 2006 through May 2014, the upstream receiving water hardness varied from 32 mg/L to 366 mg/L, based on 43 samples, and the downstream receiving water hardness varied from 32 mg/L to 242 mg/L, based on 97 samples collected between July 2010 and April 2014. For calculating the CTR criteria the ambient hardness has been used. The SIP, CTR, and State Water Board require that the hardness used must be consistent with design conditions and protective of water quality criteria under all flow conditions.

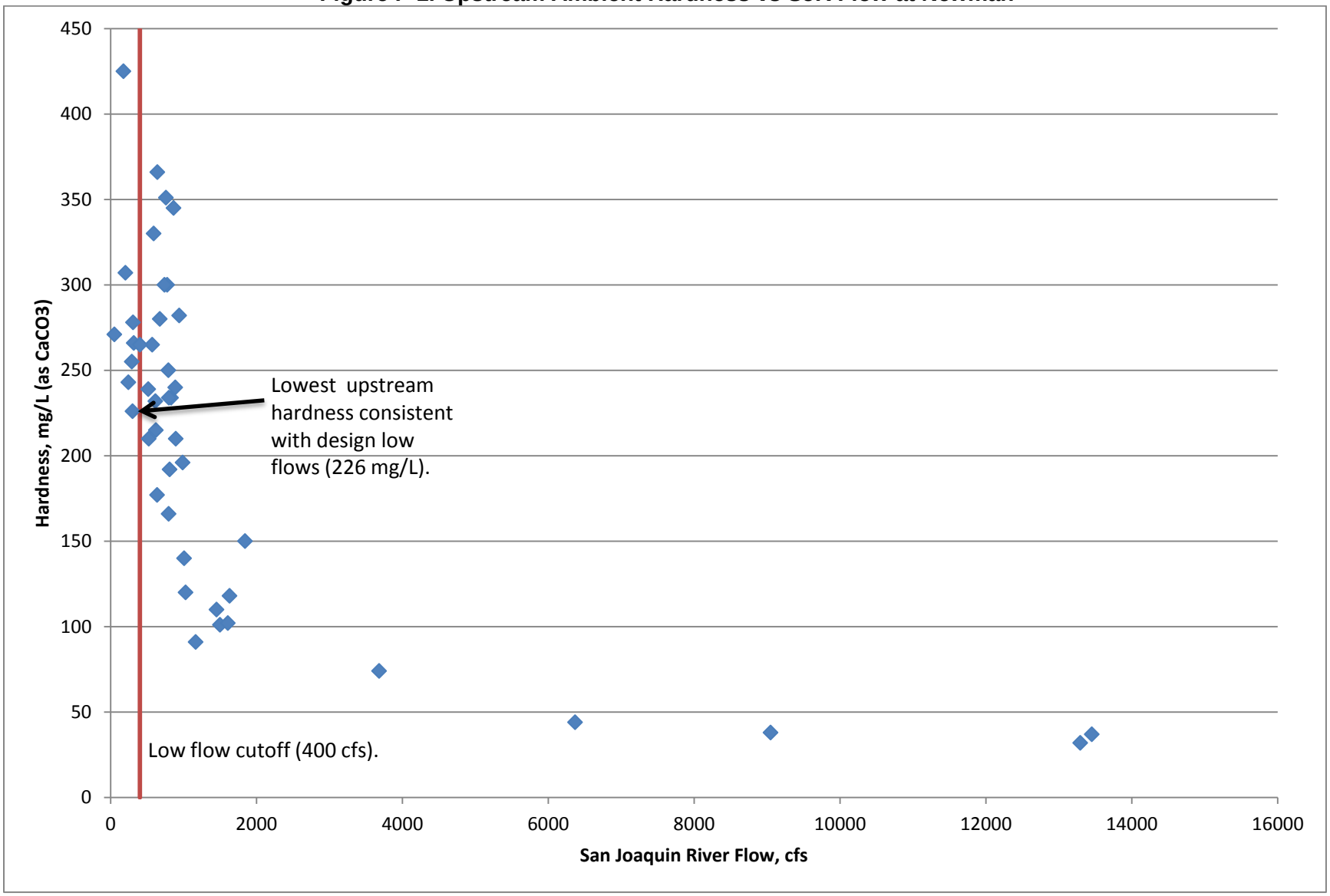
The San Joaquin River (SJR) flow at Newman ranged from 230 cubic feet per second (cfs) to 32,725 cfs from May 2006 through May 2014[1]. The higher flows are predominantly due to storm water runoff and snow melt, which contain low hardness. When graphing hardness as a function of flow, there is a clear relationship between flow and hardness. The hardness is distinctly higher during low flows than during high flows (see Figure F-1). The lowest observed upstream ambient hardness during low flows has been considered for calculation of the CTR criteria.

The 7Q10 low flow for the SJR is approximately 157 cfs[2] as reported by the Discharger in a Mixing Zone Study submitted to the Central Valley Water Board in 2009. The ambient hardness consistent with design conditions corresponds to the hardness when flows in the SJR are consistent with the 1Q10 and 7Q10 low flows. There is very little hardness data when the SJR flows are at or below the 7Q10 low flow. Therefore, ambient hardness were evaluated when the SJR flow was less than 400 cfs. The lowest ambient hardness under this condition is 226 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. The applicable design ambient hardness was selected for each metal using an iterative process considering reasonable-worst case conditions described below, and has been demonstrated to be protective at all flow conditions in the tables F-9 through F-16. The applicable design ambient hardness for each metal is summarized in Table F-17.

[1] California Data Exchange Center. California Department of Water Resources Stream Site NEW, San Joaquin River near Newman, CA (http://cdec.water.ca.gov/)

[2] Larry Walker Associates. *City of Turlock Water Control Facility – San Joaquin River Discharge Mixing Zone Study and Requested Amendment to Tentative Order, NPDES No. CA0078948. Prepared for the City of Turlock, June 16, 2009.*

Figure F-1. Upstream Ambient Hardness vs SJR Flow at Newman



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-8 through F-16, 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-17.

For this evaluation the following conservative assumptions have been made:

- Upstream receiving water at the lowest observed upstream receiving water hardness (i.e., 32 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 32 mg/L).
- Effluent hardness at the lowest observed effluent hardness of 93 mg/L

Table F-8, below, is an example for copper where a design ambient hardness of 226 mg/L (i.e., the lowest ambient 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 all 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] USEPA NPDES Permit Writers’ Manual, September 2010 (EPA-833-K-10-001)

Table F-8. Copper Evaluation (Design Ambient Hardness = 226 mg/L)

Assumed Upstream Receiving Water Copper Concentration					3.5 µg/L[1]
				Copper Chronic Criterion[2]	18.7 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%	32.61	3.6	3.7	**No**
	5%	35.05	3.8	4.3	**No**
	15%	41.15	4.4	5.8	**No**
	25%	47.25	4.9	7.3	**No**
	50%	62.5	6.2	11.1	**No**
Low Flow	75%	77.75	7.5	14.9	**No**
	100%	93	8.8	18.7	**No**

To select the applicable design ambient hardness for each metal an iterative approach was used considering the range of ambient hardness observed in the San Joaquin River and the conservative assumptions discussed above. The following tables (F-9 through F-16) demonstrate that the selected design ambient hardness values used to calculate the CTR criteria result in protective criteria for all flow conditions.

Table F-9. Copper Evaluation (Design Ambient Hardness = 93 mg/L)

Assumed Upstream Receiving Water Copper Concentration					3.5 µg/L[1]
				Copper Chronic Criterion[2]	8.8 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%	32.61	3.6	3.6	**Yes**
	5%	35.05	3.8	3.8	**Yes**
	15%	41.15	4.4	4.3	**Yes**
	25%	47.25	4.9	4.8	**Yes**
	50%	62.5	6.2	6.1	**Yes**
Low Flow	75%	77.75	7.5	7.5	**Yes**
	100%	93	8.8	8.8	**Yes**

Table F-10. Chromium III Evaluation (Design Ambient Hardness = 93 mg/L)

Assumed Upstream Receiving Water Chromium III Concentration					81.4 µg/L[1]
				Chromium III Chronic Criterion[2]	195 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%	32.61	82.7	82.5	Yes
	5%	35.05	87.7	87.1	Yes
	15%	41.15	100.0	98.5	Yes
	25%	47.25	112.0	109.8	Yes
	50%	62.5	140.9	138.2	Yes
	75%	77.75	168.4	166.6	Yes
Low Flow	100%	93	195.0	195.0	Yes

Table F-11. Cadmium (Chronic) Evaluation (Design Ambient Hardness = 93 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration					1.0 µg/L[1]
				Cadmium Chronic Criterion[2]	2.3 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%	32.61	1.0	1.0	Yes
	5%	35.05	1.1	1.1	Yes
	15%	41.15	1.2	1.2	Yes
	25%	47.25	1.4	1.3	Yes
	50%	62.5	1.7	1.7	Yes
	75%	77.75	2.0	2.0	Yes
Low Flow	100%	93	2.3	2.3	Yes

Table F-12. Cadmium (Acute) Evaluation (Design Ambient Hardness = 89 mg/L)

Assumed Upstream Receiving Water Cadmium Concentration					1.2 µg/L[1]
				Cadmium Acute Criterion[2]	1.44 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%	88.6	3.9	3.9	Yes
	5%	88.8	4.0	3.8	Yes
	15%	89.2	4.0	3.6	Yes
	25%	89.7	4.0	3.3	Yes
	50%	90.8	4.1	2.7	Yes
	75%	91.9	4.1	2.1	Yes
Low Flow	100%	93.0	4.2	1.4	Yes

Table F-13. Lead Evaluation (Design Ambient Hardness = 84 mg/L)

Assumed Upstream Receiving Water Lead Concentration					0.75 µg/L[1]
				Lead Chronic Criterion[2]	2.90 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%	84.4	2.56	2.56	Yes
	5%	84.7	2.58	2.58	Yes
	15%	85.6	2.61	2.61	Yes
	25%	86.5	2.64	2.64	Yes
	50%	88.7	2.73	2.73	Yes
	75%	90.8	2.81	2.81	Yes
Low Flow	100%	93.0	2.90	2.90	Yes

Table F-14. Nickel Evaluation (Design Ambient Hardness = 93 mg/L)

Assumed Upstream Receiving Water Nickel Concentration					19.9 µg/L[1]
				Nickel Chronic Criterion[2]	49.1 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%	32.61	20.2	20.2	Yes
	5%	35.05	21.5	21.4	Yes
	15%	41.15	24.6	24.3	Yes
	25%	47.25	27.7	27.2	Yes
	50%	62.5	35.0	34.5	Yes
	75%	77.75	42.2	41.8	Yes
Low Flow	100%	93	49.1	49.1	Yes

Table F-15. Silver (Acute) Evaluation (Design Ambient Hardness = 75 mg/L)

Assumed Upstream Receiving Water Silver Concentration					0.6 µg/L[1]
				Silver Acute Criterion[2]	3.49 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%	74.7	2.5	2.5	Yes
	5%	75.5	2.5	2.5	Yes
	15%	77.3	2.6	2.6	Yes
	25%	79.2	2.7	2.7	Yes
	50%	83.8	3.0	3.0	Yes
	75%	88.4	3.3	3.2	Yes
Low Flow	100%	93.0	3.6	3.5	Yes

Table F-16. Zinc Evaluation (Design Ambient Hardness = 93 mg/L)

Assumed Upstream Receiving Water Zinc Concentration					**45.6 µg/L[1]**
Zinc Chronic Criterion[2]					**112.7 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%	32.61	46.4	46.3	**Yes**
	5%	35.05	49.3	49.0	**Yes**
	15%	41.15	56.5	55.7	**Yes**
	25%	47.25	63.5	62.4	**Yes**
	50%	62.5	80.5	79.1	**Yes**
	75%	77.75	96.8	95.9	**Yes**
Low Flow	100%	93	112.7	112.7	**Yes**

Footnotes for CTR Hardness-dependent Metals Tables (F-1 through F-9)

1 Highest assumed upstream receiving water metals concentration calculated using CTR equation (Equation 1) for chronic/ acute criterion at a hardness of **32 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-10).

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-17.

Table F-17. Applicable 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	93	13	8.8
Chromium III	93	1600	190
Cadmium	93 (chronic) 89 (acute)	1.4	2.3
Lead	84	74	2.9
Nickel	93	440	49
Silver	75	3.5	--
Zinc	93	110	110

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

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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. **Boron**

(a) **WQO.** Table III-1 of the Basin Plan contains water quality objectives for boron in the San Joaquin River from the mouth of the Merced River to Vernalis as follows:

Table F-18. Boron Water Quality Objectives

Constituent	Maximum Concentration (µg/L)[1]	Applicable Water Bodies
Boron	2,000 (15 March through 15 September) 800 (monthly mean, 15 March through 15 September)	San Joaquin River, mouth of Merced River to Vernalis
	2,600 (16 September through 14 March) 1,000 (monthly mean, 16 September through 14 March)	
	1,300 (monthly mean, critical year)[2]	

[1] Boron objectives are in total concentrations.
[2] See Table IV-3 of the Basin Plan.

(b) **RPA Results.** Boron concentrations in the effluent ranged from 147 µg/L to 279 µg/L based on 46 samples collected between April 2010 and April 2014. The upstream receiving water boron concentration was 506 µg/L in a sample collected 16 April 2012. The effluent and receiving water data do not exceed the site-specific Basin Plan objective for boron. Therefore, boron in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the site-specific objectives and the effluent limitations for boron 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. **Chloride (see section IV.C.3.c.xii~~i~~ of this Fact Sheet)**

iii. **Copper**

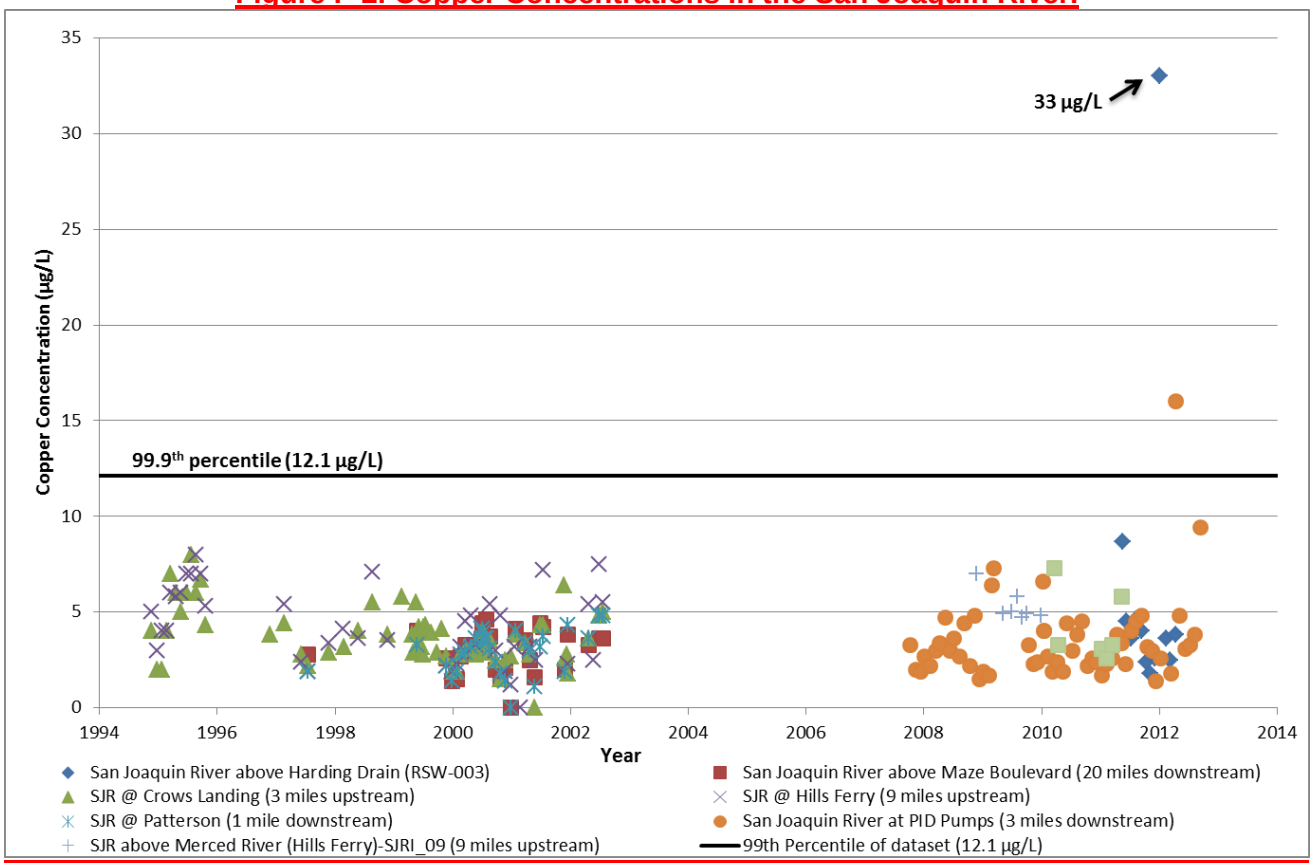
(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. Default USEPA translators (i.e., 0.96 for acute and chronic criteria) were used in this Order. As discussed in section IV.C.2.d, the design ambient hardness for calculating the CTR criteria is an ambient hardness of 93 mg/L (as CaCO3). Using the design hardness of 93 mg/L (as CaCO3) the hardness dependent acute and chronic criteria for total recoverable copper are 13 µg/L and 8.8 µg/L, respectively.

(b) **RPA Results.** Based on 43 effluent samples collected between June 2010 and April 2014 the MEC was 8.5 µg/L, which is below the criteria. The Discharger collected 12 samples from the receiving water upstream of the Facility's discharge between April 2012 and March 2013, which ranged in total recoverable copper concentrations from 1.8 µg/L to 33 µg/L. The maximum concentration of 33 µg/L is questionable, because the next highest sample was 8.7 µg/L. The SIP, Section 1.2 states, "The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality; questionable quality control/quality assurance practices; and varying seasonal conditions."

Additional San Joaquin River copper data from the California Environmental Data Exchange Network (CEDEN) was evaluated.

Based on ~~97~~ 254 samples collected from the San Joaquin River between October 1995 and August 2013, and within ~~2 miles upstream from the~~9 miles upstream and within 20 miles downstream of the Facility's discharge point. ~~between October 1995 and June 2003,~~, ~~the~~ The 99.9th percentile occurrence probability of the dataset for total recoverable copper concentrations was 12.1 µg/L ~~ranged from 1.1 µg/L to 8.0 µg/L~~. Figure ~~F-~~2, below, shows total recoverable copper data for the San Joaquin River.

Figure F-2. Copper Concentrations in the San Joaquin River.



This information supports the ~~assumption~~ conclusion that the maximum observed copper concentration of 33 µg/L is an outlier and is not representative of typical receiving water conditions in the San Joaquin River. Thus, the Central Valley Water Board has used its discretion per Section 1.2 of the SIP and it ~~should~~ was not ~~be~~ considered in the RPA. The maximum ambient receiving water concentration of 8.7 µg/L, ~~which~~ does not exceed the applicable CTR criteria for copper. Therefore, copper in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life and the effluent limitations 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).

iv. **Diazinon and Chlorpyrifos**

(a) **WQO.** The Central Valley Water Board completed a TMDL for diazinon and chlorpyrifos in the San Joaquin River and amended the Basin Plan to include diazinon and chlorpyrifos WLA's and water quality objectives. The Basin Plan Amendment for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River was adopted by the Central Valley Water Board on 21 October 2005 and became effective on 20 December 2006.

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

The amendment states that "*The Waste Load Allocations (WLA) 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 for WLA…
C_C = chlorpyrifos concentration in µg/L of point source discharge for the WLA…
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."

(b) **RPA Results.** Based on 16 samples collected between April 2010 and March 2014, chlorpyrifos was not detected in the effluent with an MDL of 0.01 µg/L. Based on 16 samples collected between April 2010 and March 2014, diazinon was not detected in the effluent with an MDL of 0.02 µg/L. However, due to the TMDL for diazinon and chlorpyrifos in the San Joaquin River, WQBEL's for these constituents are required. The TMDL WLA applies to all NPDES dischargers to the Lower San Joaquin River and will serve as the basis for WQBEL's.

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

(1) Average Monthly Effluent Limitation (AMEL)

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

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

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

(2) Maximum Daily Effluent Limitation (MDEL)

$$S_{MDEL} = \frac{C_{D\ MAX}}{0.14} + \frac{C_{C\ MAX}}{0.021} \leq 1.0$$

$C_{D\text{-}max}$ = maximum daily diazinon effluent concentration in µg/L

$C_{C\text{-}max}$ = maximum daily chlorpyrifos effluent concentration in µg/L

(d) **Plant Performance and Attainability.** Based on 16 samples collected for diazinon and chlorpyrifos, all of which were not detected in the effluent, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

v. **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. Order R5-2010-0002-01 included an annual average effluent limitation of 300 µg/L 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 214 µg/L based on 15 samples collected between April 2010 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. Since the discharge does not demonstrate reasonable potential, the effluent limitation for iron 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).

vi. **Lead**

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. Default USEPA translators were used in this Order. As discussed in section IV.C.2.d, the design ambient hardness for calculating the CTR criteria is an ambient hardness of 84 mg/L (as CaCO3). Using the design hardness of 84 mg/L (as CaCO3) the hardness dependent

acute and chronic criteria for total recoverable lead are 74 µg/L and 2.9 µg/L, respectively.

(b) **RPA Results.** The Discharger collected 12 samples for lead between April 2012 and March 2013, with a Method Detection Limit (MDL) of 0.17 µg/L and a Reporting Limit (RL) of 0.5 µg/L, lead was not detected in the Facility's effluent in any of the 12 samples. The maximum observed upstream total recoverable lead concentration was 3.0 µg/L, which was measured on 16 April 2012. Therefore, the maximum ambient receiving water concentration exceeds the applicable criteria for lead. Section 1.3, Step 6 of the SIP states that if the receiving water concentration exceeds the criteria and the pollutant is detected in the effluent, an effluent limitation is required. However, as discussed above, lead was not detected in the effluent. Therefore, according to Section 1.3, Step 6 of the SIP, the discharge does not exhibit reasonable potential, and the effluent limitation for lead 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).

vii. **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. Order R5-2010-0002-01 included an annual average effluent limitation of 50 µg/L 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 24 µg/L based on 15 samples collected between April 2010 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. Since the discharge does not demonstrate reasonable potential, the effluent limitation for manganese 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).

viii. **Selenium**

(a) **WQO.** The CTR includes maximum 1-hour average and 4-hour average selenium criteria of 20 and 5 µg/L, respectively, for the protection of freshwater aquatic life for selenium. The Central Valley Water Board adopted site-specific water quality objectives for selenium in the San Joaquin River from the mouth of the Merced River to Vernalis of 12 µg/L as a maximum concentration and 5 µg/L as a 4-day average for the protection of aquatic life.

(b) **RPA Results.** The MEC for selenium was 0.43 µg/L based on 46 samples collected between April 2010 and April 2014. The maximum observed upstream receiving water concentration for selenium was 2.6 µg/L based on 12 samples collected between April 2010 and April 2014. Therefore, selenium 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 site-specific objective for the San Joaquin River, and the WQBEL's for selenium 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).

ix. **Silver**

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for silver. These criteria for silver are presented in dissolved concentrations, as 1-hour acute criteria. Default USEPA translators were used in this Order. As discussed in section IV.C.2.d, the design ambient hardness for calculating the CTR criteria is an ambient hardness of 75 mg/L (as CaCO3). Using the design hardness of 75 mg/L (as CaCO3) the hardness dependent acute criterion for total recoverable silver is 3.5 µg/L.

(b) **RPA Results.** Based on 47 samples collected between June 2010 and April 2014 the MEC was an estimated concentration of 0.03 µg/L at a method detection level of 0.02 µg/L and a reporting level of 0.1 µg/L, which is below the acute criterion. Silver was not detected in the receiving water at a method detection level of 0.6 µg/L in 12 samples collected between April 2012 and March 2013. Based on the available data, silver in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life and the effluent limitations for silver 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).

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. **N-Nitrosodi-n-Propylamine**

(a) **WQO.** The CTR includes a criterion for n-nitrosodi-n-propylamine for the protection of human health of 0.005 µg/L.

(b) **RPA Results.** N-nitrosodi-n-propylamine was detected but not quantified in the effluent at a concentration of 0.7 µg/L based on 12 samples collected between April 2010 and April 2014. N-nitrosodi-n-propylamine was not detected in the remaining 11 samples. N-nitrosodi-n-propylamine was not detected in the upstream receiving water based on 12 samples. The Discharger used an analytical method with a method detection limit (MDL) of 0.3 µg/L and a reporting level (RL) of 2 µg/L.

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 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.

(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 ML's for n-nitrosodi-n-propylamine. The lowest applicable ML cited for n-nitrosodi-n-propylamine is 5 µg/L. The Discharger used an analytical method that is more sensitive than the ML required by the SIP. The effluent results were all estimated values (i.e., DNQ) or non-detects. Therefore, the submitted effluent n-nitrosodi-n-propylamine 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 n-nitrosodi-n-propylamine in both the effluent and the receiving water. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, bis (2-ethylhexyl) phthalate, carbon tetrachloride, chlorine residual, chlorodibromomethane, dichlorobromomethane, mercury, pH, nitrate, and salinity. 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. **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's 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.

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 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 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 Joaquin River, the receiving water, ranged from 6.7 to 8.4 with a median of 7.7 based on 211 monitoring results obtained between April 2010 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 41.9 mg/L to 366 mg/L, based on 23 samples collected between April 2010 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 (San Joaquin River)
pH	standard units	6.0 – 6.5	6.3 – 9.9	6.7 – 8.4
Hardness, Total (as $CaCO_3$)	mg/L	12	92.9 – 129	41.9 – 366
Aluminum, Total Recoverable	µg/L	87.2 - 390	29 – 607	No Data

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}[2] 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

[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

[2] 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
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
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 has not conducted a toxicity test for aluminum; however, the City of Manteca conducted toxicity tests in the San Joaquin River. As shown, the test water quality characteristics of the San Joaquin River near Manteca are similar for pH and hardness in the San Joaquin River, with the hardness of 124 mg/L as $CaCO_3$ in comparison to the hardness of the San Joaquin River near the discharge that averages 227 mg/L as $CaCO_3$. Thus, results of the site-specific study conducted on the San Joaquin River near Manteca are representative of the San Joaquin River near the discharge. Therefore, the City of Manteca aluminum toxicity test study is relevant for use in determining the specific numerical criteria to be used in determining compliance with the Basin Plan's narrative toxicity objective. The City of Manteca aluminum toxicity study resulted in a minimum site-specific aluminum objective of 7,823 µg/L. Thus, these results support the conclusion that the 87 µg/L chronic criterion is overly stringent for the San Joaquin River near the discharge.

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 USEPA's NAWQC and the discussion above.

(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 261 µg/L based on 61 samples collected between April 2010 and April 2014. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL. The maximum observed effluent aluminum concentration of 607 µg/L does not exceed the NAWQC acute criterion of 750 µg/L.

(c) **WQBEL's.** This Order contains final average weekly and average monthly effluent limitations for aluminum of 820 µg/L and 350 µg/L, respectively, based on the Secondary MCL.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the highest monthly average of 607 µg/L exceeds the AMEL. The Discharger has determined the elevated effluent aluminum concentrations were a result of chemicals used for the filtration process. The Discharger has ceased using the chemicals, therefore, the Facility will be able to immediately comply with the aluminum effluent limits.

ii. **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

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

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.*"~~In August 2013, U.S. EPA updated its National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia[1]. The 2013 NAWQC for ammonia recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (30-day average; criteria continuous concentration or CCC) standards that vary based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. The 2013 NAWQC for ammonia takes into account data for several sensitive freshwater mussel species and non-pulmonate snails that had not previously been tested.~~

~~U.S. EPA found that as pH and temperature increased, both the acute and chronic toxicity of ammonia increased for invertebrates. However, U.S. EPA found that only pH significantly influenced acute and chronic ammonia toxicity for fish. Therefore, the 2013 acute NAWQC for ammonia is primarily based on the ammonia effects on species in the genus *Oncorhyncus* (salmonids) at lower temperatures and invertebrates at higher temperatures. However, due to the significant sensitivity unionid mussels have to the chronic toxicity effects of ammonia, the 2013 chronic NAWQC for ammonia is determined primarily by the effects of mussels.~~

~~The 2013 ammonia NAWQC document states that "*unionid mussel species are not prevalent in some waters, such as the arid west*." The 2013 ammonia NAWQC also states 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 2013 ammonia NAWQC document, therefore, includes a recalculation procedure for acute and chronic criteria for waters where mussels are not present. The 2013 ammonia NAWQC also provides criteria for waters where Oncorhynchus species are not present and where protection of early life stages of fish genera is unnecessary.~~

~~A report prepared by The Nature Conservancy, *Sensitive Freshwater Mussel Surveys in the Pacific Southwest Region: Assessment of Conservation Status (*published August 2010), demonstrates the results of a strategic mussel study and survey conducted during 2008-2009. Results from the study around the locality of the Facility's discharge are summarized in the table below. The study indicates mussels were historically present at several locations in the San Joaquin River. However, in the 2008-2009 survey, mussels were present only downstream of Windmill Cove (near Stockton). Therefore, the likelihood of mussels occurring in the San Joaquin River in the vicinity of the discharge~~

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

~~is uncertain at this time and the site-specific ammonia criteria for waters where mussels are not present were used. San Joaquin River has a beneficial use of cold freshwater habitat (COLD) and the presence of salmonids and early fish life stages in the San Joaquin River is well-documented, therefore, the recommended ammonia criteria for waters where salmonids and early life stages are present were used.~~

~~Table F-19. Presence of Mussels in the San Joaquin River~~

~~Water Body~~	~~Locality~~	~~Mussels Found Historically~~	~~Mussels Found in 2008-2009 Survey~~
~~San Joaquin River~~	~~14 miles N.E. of Fresno, CA~~	~~Anodonta~~	~~NA~~
~~San Joaquin River~~	~~Antioch, CA~~	~~Anodonta~~	~~NA~~
~~San Joaquin River~~	~~Stevenson, CA~~	~~Anodonta~~	~~NA~~
~~San Joaquin River~~	~~Downstream of Windmill Cove~~	~~Anodonta Gonidea Margaritifera~~	~~Anodonta~~
~~San Joaquin River~~	~~Upper San Joaquin River~~	~~Gonidea~~	~~NA~~

~~NA = Either not surveyed or not known if currently present.~~

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 Central Valley Water Board may require additional information from the Discharger in the future to evaluate whether more restrictive ammonia criteria for other species (i.e., unionid mussels) is applicable for the San Joaquin River. There is some uncertainty to whether mussels are present or absent in the San Joaquin River in the vicinity of the discharge. Thus, at this time, ammonia criteria have been calculated with the assumption that mussels are not present.~~

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.

Based on 1,461 effluent samples from June 2010 – May 2014 the effluent pH ranged from 6.6 – 7.7. 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.~~The acute criterion was calculated for each day when paired temperature and pH were measured using downstream receiving water data. The minimum observed acute criterion based on the paired data was established as the applicable acute criterion, or 1-hour CMC. The most stringent acute criterion was 3.15 mg/L.~~

A chronic criterion was calculated for each day when paired temperature data and pH were measured using downstream receiving water data for temperature and pH. The temperature of the receiving water varies seasonally. Therefore, seasonal water quality criteria were calculated for the winter season (i.e., 1 November through 15 April) and the summer season (i.e., 16 April through 31 October). Rolling 30-day average criteria were calculated from downstream receiving water data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC for each season. For the summer season, ~~T~~the most stringent 30-day CCC was 1.02~~1.69~~ mg/L (as N) and the~~. The~~ 4-day average concentration was 2.55 mg/L (as N). ~~is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.69mg/L (as N), the 4-day average concentration that should not be exceeded is 4.23mg/L (as N).~~ For the winter season, the most stringent 30-day CCC was 2.25 mg/L (as N) and the 4-day average concentration was 5.63 mg/L (as N).

(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. §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 LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains final seasonal WQBELs for ammonia. For the summer season the AMEL and AWEL are 0.94 mg/L and 2.1 mg/L

ammonia (as N), respectively, and for the winter season the AMEL and AWEL are 2.1 mg/L and 4.7 mg/L ammonia (as N), respectively. ~~This Order contains a final AMEL and AWEL for ammonia of 1.6 mg/L and 2.7 mg/L (as N), respectively, based on the NAWQC.~~

(d) **Plant Performance and Attainability.** Based on 222 sample results for the effluent ~~s~~ collected between April 2010 and April 2014, the maximum weekly effluent ammonia concentration was 4.4 mg/L. The effluent exceeded the applicable ~~MDEL~~ AWEL ~~two times~~once, but ~~and~~ did not exceed the applicable AMEL. The ~~two~~ exceedance~~s~~ occurred during a period~~s~~ when maintenance activities caused a spike~~s~~ in ammonia and the~~se~~ value~~s~~ ~~are~~ is not representative of Facility performance. Typically, the Facility removes ammonia to concentrations that are not detectable in the effluent with an MDL of 0.5 mg/L. Thus the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

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

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

(b) **RPA Results.** The MEC for bis (2-ethylhexyl) phthalate was 6.6 µg/L based on 24 samples collected between April 2010 and April 2014. The maximum observed concentration of bis (2-ethylhexyl) phthalate in the upstream receiving water was 1 µg/L based on 12 samples collected between April 2010 and April 2014.

Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, an analytical equipment, and sources of detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. However, the laboratory data sheets for the detected results do not indicate that the detections are the result of laboratory contamination and there is a known industrial discharger (plastic recycler) that discharges bis (2-ethylhexyl) phthalate to the collection system. Therefore, the Central Valley Water Board finds that bis (2-ethylhexyl) phthalate in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion.

(c) **WQBEL's.** The receiving water contains assimilative capacity for bis (2-ethylhexyl) phthalate; therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit of 19.9 was allowed in the development of the WQBEL's for bis (2-ethylhexyl) phthalate. This Order contains a final AMEL and MDEL for bis (2-ethylhexyl) phthalate of 30 µg/L and 86 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 6.6 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. **Carbon Tetrachloride**

(a) **WQO.** The CTR includes a criterion of 0.25 µg/L for carbon tetrachloride for the protection of human health protection for waters from which both water and organisms are consumed.

(b) **RPA Results.** The MEC for carbon tetrachloride was 0.5 µg/L based on 46 samples collected between April 2010 and April 2014. Carbon tetrachloride was not detected in the upstream receiving water based on 12 samples collected between April 2010 and April 2014 (MDL 0.2 µg/L). Therefore, carbon tetrachloride in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBEL's.** The Discharger performed an upstream ambient disinfection byproduct low-level concentration study to quantify available assimilative capacity in the San Joaquin River for carbon tetrachloride. The Discharger collected upstream samples on 25 February 2009 and 15 April 2009. The analytical laboratory performed a modified U.S. EPA 524.2 method that uses a selected ion monitoring (SIM) procedure with gas chromatograph/mass spectrometry (GC/MS) analysis. The SIM method targets limited predetermined ion ranges allowing higher scanning rates for these ranges. The RL's using the SIM method are approximately three to five times lower than the MDL for the standard method. Based on the use of the SIM procedure, carbon tetrachloride concentrations in the upstream receiving water were reported as "not detected" at an RL of 0.05 µg/L. The ambient monitoring using the SIM procedure demonstrates that the San Joaquin River has assimilative capacity for carbon tetrachloride. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for carbon tetrachloride of 19.9 was allowed in the development of WQBEL's for carbon tetrachloride. This Order contains a final AMEL and MDEL for carbon tetrachloride of 4.2 µg/L and 8.5 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability**. Analysis of the effluent data shows that the MEC of 0.5 µg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Chlorine Residual**

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

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

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or*

may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Chlorine is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

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

(c) **WQBEL's.** The U.S. EPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L, respectively, based on U.S. EPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) **Plant Performance and Attainability.** Based on 1,428 samples obtained between June 2010 and April 2014, chlorine residual was detected in the effluent only four times with a maximum concentration of 1 mg/L. Thus the

Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

vi. **Chlorodibromomethane**

(a) **WQO.** The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** The MEC for chlorodibromomethane was 12.8 µg/L based on 46 samples collected between April 2010 and April 2014. Chlorodibromomethane was not detected in the upstream receiving water based on 12 samples collected between April 2010 and April 2014 (MDL 0.2 µg/L). Therefore, chlorodibromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBEL's.** The Discharger performed an upstream ambient disinfection byproduct low-level concentration study to quantify available assimilative capacity in the San Joaquin River for chlorodibromomethane. The Discharger collected upstream samples on 25 February 2009 and 15 April 2009. The analytical laboratory performed a modified U.S. EPA 524.2 method that uses a selected ion monitoring (SIM) procedure with gas chromatograph/mass spectrometry (GC/MS) analysis. The SIM method targets limited predetermined ion ranges allowing higher scanning rates for these ranges. The RL's using the SIM method are approximately three to five times lower than the MDL for the standard method. Based on the use of the SIM procedure, chlorodibromomethane concentrations in the upstream receiving water were reported as "not detected" at an RL of 0.05 µg/L. The ambient monitoring using the SIM procedure demonstrates that the San Joaquin River has assimilative capacity for chlorodibromomethane. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for chlorodibromomethane of 19.9 was allowed in the development of WQBEL's for chlorodibromomethane. This Order contains a final AMEL and MDEL for chlorodibromomethane of 7.6 µg/L and 12 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability**. Analysis of the effluent data shows that the MEC of 12.8 µg/L is greater than applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. TSO R5-2014-0901 provides a compliance schedule to achieve compliance with the final effluent limitations for chlorodibromomethane by 31 December 2019 in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

vii. **Dichlorobromomethane**

(a) **WQO.** The CTR includes a criterion of 0.56 µg/L for dichlorobromomethane for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** The MEC for dichlorobromomethane was 41.9 µg/L based on 46 samples collected between April 2010 and April 2014.

Dichlorobromomethane was not detected in the upstream receiving water based on 12 samples collected between April 2010 and April 2014 (MDL 0.2 µg/L). Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBEL's.** The Discharger performed an upstream ambient disinfection byproduct low-level concentration study to quantify available assimilative capacity in the San Joaquin River for dichlorobromomethane. The Discharger collected upstream samples on 25 February 2009 and 15 April 2009. The analytical laboratory performed a modified U.S. EPA 524.2 method that uses a selected ion monitoring (SIM) procedure with gas chromatograph/mass spectrometry (GC/MS) analysis. The SIM method targets limited predetermined ion ranges allowing higher scanning rates for these ranges. The RL's using the SIM method are approximately three to five times lower than the MDL for the standard method. Based on the use of the SIM procedure, dichlorobromomethane concentrations in the upstream receiving water were reported as "not detected" at an RL of 0.05 µg/L. The ambient monitoring using the SIM procedure demonstrates that the San Joaquin River has assimilative capacity for dichlorobromomethane. Therefore, as discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit for dichlorobromomethane of 19.9 was allowed in the development of WQBEL's for dichlorobromomethane. This Order contains a final AMEL and MDEL for dichlorobromomethane of 11 µg/L and 17 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability**. Analysis of the effluent data shows that the MEC of 41.9 µg/L is greater than applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. TSO R5-2014-0901 provides a compliance schedule to achieve compliance with the final effluent limitations for dichlorobromomethane by 31 December 2019 in accordance with Water Code section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with Water Code section 13263.3.

viii. **Mercury**

(a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 C.F.R. Part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) **RPA Results.** The MEC for mercury was 0.013 µg/L based on 46 samples collected between April 2010 and April 2014. Mercury was not

detected in the upstream receiving water based on 12 samples collected between April 2010 and April 2014 (MDL 0.3 µg/L). Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The San Joaquin River has been listed as an impaired water body pursuant to CWA section 303(d) because of mercury and the discharge must not cause or contribute to increased mercury levels.

(c) **WQBEL's.** Order R5-2010-0002-01 established an interim performance-based effluent limitation for mercury 0.82 lbs/year, but did not establish a final effluent limitation. This Order retains the performance-based mass effluent limitation of 0.82 lbs/year as a final limitation for mercury for the effluent discharged to the receiving water. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established and U.S. EPA develops mercury standards that are protective of human health.

If U.S. EPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) **Plant Performance and Attainability.** The maximum observed total annual mercury loading was 0.115 lbs/year. Thus the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

ix. **Nitrate**

(a) **WQO.** DDW has adopted Primary MCL's for the protection of human health for nitrate equal to 10 mg/L (measured as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

(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 therefore exists and WQBEL's are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley

Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

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

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate 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. Inadequate or incomplete denitrification may result in the discharge of nitrate to the receiving stream. Discharges of nitrate in concentrations that exceed the Primary MCL would violate the Basin Plan narrative chemical constituents objective. Inadequate or incomplete denitrification creates the potential for nitrate 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 and WQBEL's are required.

(c) **WQBEL's.** As discussed further in section IV.C.2.c of this Fact Sheet, a dilution credit of 2.4 was allowed in the development of the WQBEL for nitrate, which corresponds to a performance-based AMEL of 31 mg/L. Consistent with Order R5-2010-0002-01, this Order includes an AMEL of 31 mg/L, and also includes a new AWEL of 38 mg/L for nitrate.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 20.8 mg/L is less than the applicable AMEL. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

x. **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. §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 and average monthly effluent limitations, a daily maximum effluent limitation 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 chlorine disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

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

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

should be considered with available effluent monitoring data." (TSD, p. 50).

The Facility is a POTW that treats domestic wastewater. Based on 1,428 samples taken from April 2010 to April 2014, the maximum pH reported was 9.9 and the minimum was 6.3. The Facility exceeded the instantaneous maximum on one occasion on 30 December 2012 and was lower than the instantaneous minimum once on 8 June 2012. Therefore, WQBEL's for pH are required in this Order.

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

(d) **Plant Performance and Attainability.** Based on 1,428 samples obtained between June 2010 and April 2014, the maximum effluent pH was 9.9 and the minimum effluent pH was 6.3. Only on one occasion was the effluent pH above the instantaneous maximum or below the instantaneous minimum. Thus, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

xii. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life.

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

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

waste load allocations, load allocations, and supply water allocations as a means for attaining salt and boron water quality objectives while maximizing the export of salts out of the LSJR watershed."

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

Table F-~~20.~~19. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective[1]	Bay Delta Plan	Secondary MCL[3]	U.S. EPA NAWQC	Effluent	
					Average[4]	Maximum
EC (µmhos/cm)	Varies	700/1000[2]	900, 1600, 2200	N/A	~~963~~1,094	~~1,078~~1,325
TDS (mg/L)	Varies	N/A	500, 1000, 1500	N/A	608	794
Sulfate (mg/L)	Varies	N/A	250, 500, 600	N/A	80	90.4
Chloride (mg/L)	Varies	N/A	250, 500, 600	860 1-hr 230 4-day	124	183

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 Bay-Delta Plan includes water quality objectives in the South Delta for EC in the San Joaquin River at Airport Way in Vernalis, which includes a 14-day running average EC of 700 µmhos/cm from 1 April – 31 August and a 14-day running average EC of 1000 µmhos/cm from 1 September - 31 March.
3. The Secondary MCL's are stated as a recommended level, upper level, and a short-term maximum level.
4. 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. The NAWQC chronic criterion for the protection of freshwater aquatic life for chloride is 230 mg/L as a 4-day average and 860 mg/L as a 1-hr average.

(2) **Electrical Conductivity**. The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum.

The LSJR Salt and Boron Control Program has established waste load allocations for NPDES permitted discharges that shall not

exceed the State Water Board's 1995 Bay-Delta Plan salinity objectives at the Airport Way Bridge near Vernalis. The Bay-Delta Plan contains electrical conductivity water quality objectives for the San Joaquin River at Vernalis of 1,000 µmhos/cm between 1 September and 31 March, and 700 µmhos/cm between 1 April and 31 August (as a 14-day running average).

(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 85.6 mg/L to 183 mg/L, with a maximum annual average concentration of 124 mg/L based on 46 samples collected between April 2010 and April 2014. Upstream receiving water data for chloride is not available. Therefore, chloride in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the NAWQC chronic criteria of 230 mg/L or the Secondary MCL of 250 mg/L, and the effluent limitations for chloride 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).

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports shows a maximum observed annual average effluent electrical conductivity of ~~963~~ 1,094 µmhos/cm, with a range from 681 µmhos/cm to ~~1,078~~1,325 µmhos/cm based on ~~202~~ 277 samples collected between April 2010 and ~~April 2014~~January 2015. The San Joaquin River receiving water electrical conductivity averaged ~~1,013~~1,014 µmhos/cm based on ~~200~~ 244 samples collected between April 2010 and ~~April 2014~~January 2015. The discharge does not have reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 54.1 mg/L to 90.4 mg/L, with a maximum annual average concentration of 80 mg/L. These levels do not exceed the Secondary MCL. Upstream receiving water data for sulfate is not available.

(4) **Total Dissolved Solids.** The maximum observed annual average total dissolved solids effluent concentration was 608 mg/L with concentrations ranging from 390 mg/L to 794 mg/L. These levels exceed the Secondary MCL's recommended level, but do not exceed the upper level. Upstream receiving water data for total dissolved solids is not available.

(c) **WQBEL's.** The LSJR Salinity Control Program established waste load allocations for NPDES permitted discharges to not exceed the Bay-Delta Plan South Delta EC objectives for the San Joaquin River at Airport Way in Vernalis.

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 that will address the Court Order. Therefore, at the time this Order was adopted the South Delta salinity objectives (including the objectives for the San Joaquin River at Airport Way in Vernalis) are not applicable to the Discharger.

The State Water Board is currently revising the Bay-Delta Plan, and its revision includes consideration of application of the salinity objectives to municipal discharges. In Accordance with the peremptory writ of mandate in the matter of *City of Tracy v. State Water Resources Control Board* (Case No; 34-2009-8000-392-CU-WM-GDS), the Central Valley Water Board is not able to apply the Bay-Delta Plan salinity objectives to the discharge of the Facility, and as a result, is unable to establish final water quality-based effluent limits.

Pending the Bay-Delta Plan amendment, this Order includes permit requirements to ensure the Discharger does not increase the salinity of the discharge. This Order establishes a performance-based annual average effluent limit for electrical conductivity of ~~1100~~ 1,250 µmhos/cm and requires the Discharger to continue to implement a salinity source control program to identify and implement measures to reduce salinity in the discharge to the San Joaquin River. The established effluent limit is based on current treatment plant performance considering the effects of water conservation and drought effects on Facility influent and effluent salinity concentrations. The effluent limit was derived using the report titled, *Water Conservation and Drought Effects on City of Turlock Performance-based Electrical Conductivity Effluent Limitations*, by Larry Walker Associates, Inc, dated 13 February 2015. The established effluent limit ~~and~~ will ensure that the mass loading of salinity in the receiving water does not increase while site-specific objectives are developed.

This Order contains reopener provisions in the event water quality objectives are adopted for the San Joaquin River in the vicinity of the discharge or if the State Water Board updates the Bay-Delta Plan EC objectives for the South Delta. The reopener provisions would allow the permit to be reopened to modify the WQBEL's for EC as appropriate.

(d) **Plant Performance and Attainability.** Based on existing Facility performance it appears the Discharger can immediately comply with the electrical conductivity effluent limits.

4. WQBEL Calculations

a. This Order includes WQBEL's for aluminum, ammonia, bis (2-ethylhexyl) phthalate, BOD_5~~, boron~~, carbon tetrachloride, chlorine residual, chlorodibromomethane, chlorpyrifos, diazinon, dichlorobromomethane, electrical conductivity, mercury, nitrate, pH, 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:

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

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 ECAs 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 ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

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 No. 001

Table F-~~21.~~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]	1,668	2,502	3,336	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	1,668	2,502	3,336	--	--
Priority Pollutants						
Bis (2-ethylhexyl) phthalate	µg/L	30	--	86	--	--
Carbon Tetrachloride	µg/L	4.2	--	8.5	--	--
Chlorodibromomethane	µg/L	7.6	--	12	--	--
Dichlorobromomethane	µg/L	11	--	17	--	--
Mercury, Total Recoverable	lbs/year	0.82[2]	--	--	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	350	820	--	--	--
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	~~1.6~~0.94	~~2.7~~2.1	--	--	--
	lbs/day[1]	~~267~~160	~~450~~350	--	--	--
~~Boron, Total Recoverable~~	~~µg/L~~	~~0.8[3]/1.0[4]~~	~~--~~	~~2.0[3]/2.6[4]~~	~~--~~	~~--~~
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	2.1	4.7	--	--	--
	lbs/day[1]	350	784	--	--	--
Chlorine, Total Residual	mg/L	--	0.011~~[35]~~	0.019~~[46]~~	--	--
Chlorpyrifos	µg/L	~~[57]~~	--	~~[68]~~	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Diazinon	µg/L	[~~5~~7]	--	[~~6~~8]	--	--
Electrical Conductivity @25°C	µmhos/cm	~~1,100~~1,250[~~9~~7]	--	--	--	--
Nitrate Nitrogen, Total (as N)	mg/L	31	38	--	--	--
Total Coliform Organisms	MPN/ 100 mL	--	2.2[~~8~~10]	23[~~9~~11]	--	240

[1] Based on an average dry weather flow of 20 MGD.
[2] The effluent calendar year annual average total mercury load shall not exceed 0.82 pounds/year.
~~[3] Applicable 15 March through 15 September.~~
~~[4] Applicable 16 September through 14 March.~~
[~~3~~5] Applied as a 4-day average effluent limitation.
[~~4~~6] Applied as a 1-hour average effluent limitation.
[~~5~~7] Average Monthly Effluent Limitation

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

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

[~~6~~8] Maximum Daily Effluent Limitation

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

$C_{D\ W\text{-}AVG}$ = average weekly diazinon effluent concentration in µg/L.
$C_{C\ W\text{-}AVG}$ = average weekly chlorpyrifos effluent concentration in µg/L.
[~~7~~9] Applied as an annual average effluent limitation.
[~~8~~11] Applied as a 7-day median effluent limitation.
[~~9~~11] 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 April 2010 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-~~22.~~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)
20 October 2010	1	1	1	1	1
25 February 2011	1	1	1	1	1
25 April 2011	1	1	1	1	1
25 July 2011	1	1	1	1	1
24 October 2011	1	1	1	1	1
24 January 2012	1	1	1	1	1
23 July 2012	1	1	1	1	1
23 April 2012	1	1	1	1	1
19 October 2012	1	1	1	1	1

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
22 January 2013	1	1	1	1	1
19 April 2013	1	1	2	8	1
21 July 2013	1	1	1	1	1
13 December 2013	1	1	1	1.3	1
21 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 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 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 meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. section122.44(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

[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)

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 Toxicity Reduction Evaluation (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 R5-2010-0002-01, with the exception of effluent limitations for ammonia, boron, chloride, copper, electrical conductivity, iron, lead, manganese, selenium, and silver. The effluent limitations for these pollutants are less stringent than those in Order R5-2010-0002-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

i. For waters where standards are not attained, CWA section 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, copper, iron, lead, manganese, selenium, and silver 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, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, changes to the stringency of the effluent limitations for ammonia, copper, iron, lead, manganese, selenium, and silver from Order R5-2010-0002-01 meets the exception in CWA section 303(d)(4)(B).

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

As described further in section IV.C.3.a of this Fact Sheet, updated information that was not available at the time Order R5-2010-0002-01 was issued indicates that boron, chloride, copper, electrical conductivity, iron, lead, manganese, selenium, and silver, 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. **Boron.** Effluent and receiving water monitoring data collected between April 2010 and April 2014 indicates that boron in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance site-specific Basin Plan objective for boron.

ii. **Chloride.** Effluent monitoring data collected between April 2010 and April 2014 indicates that chloride in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the NAWQC criteria.

iii. **Copper.** Effluent and receiving water monitoring data collected between April 2010 and April 2014 indicates that copper in 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.

[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.

iv. **Electrical Conductivity.** In accordance with the Basin Plan's LSJR Salt and Boron Control Program, previous Order R5-2010-0002-01 included seasonal average monthly effluent limitations for EC based on the Bay-Delta Plan South Delta Objectives for the San Joaquin River at Airport Way near Vernalis (700 µmhos/cm from 1 April – 31 August, and 1,000 µmhos/cm from 1 September – 31 March). Since the adoption of the previous order 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 are not applicable to the Discharger.

v. **Iron.** Effluent monitoring data collected between April 2010 and April 2014 indicates that iron in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

vi. **Lead.** Effluent and receiving water monitoring data collected between April 2010 and April 2014 indicates that lead in 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.

vii. **Manganese.** Effluent monitoring data collected between April 2010 and April 2014 indicate that manganese in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

viii. **Selenium**. Effluent and receiving water monitoring data collected between April 2010 and April 2014 indicates that selenium in 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 or the Basin Plan site-specific objective for the San Joaquin River.

ix. **Silver.** Effluent and receiving water monitoring data collected between April 2010 and April 2014 indicates that silver in 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.

Thus, removal or relaxation of the effluent limitations for chloride, copper, iron, lead, manganese, selenium, and silver from Order R5-2010-0002-01 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal of effluent limitations based on information that was not available at the time of permit issuance.

c. **Dichlorobromomethane.** For dichlorobromomethane, the MDEL has changed from the previous Order. However, the effluent limit is not less stringent. In this case, the WLA in this Order and the previous Order are identical. The WLA provides a definition of effluent quality that is necessary to meet the water quality standards of the receiving water and is used to derive WQBEL's that are used to enforce the WLA.

The TSD warns that, "*Direct use of a WLA as a permit limit creates a significant risk that the WLA will be enforced incorrectly, since effluent variability and the probability*

basis for the limit are not considered specifically." (TSD, p. 96) The SIP and TSD include identical procedures for calculating WQBEL's that use the statistical variability of the effluent to convert the WLA to AMEL's and MDEL's.

The new effluent data used to calculate WQBEL's for this Order has different statistical variability (i.e., coefficient of variation is different) than used in the previous Order. Changes in the coefficient of variation can result in small changes to the effluent limits. However, the slight changes in effluent limits do not allow for an increase in the pollutants discharged. The TSD states, "*Since effluents are variable and permit limits are developed based on a low probability of exceedence, the permit limits should consider effluent variability and ensure that the requisite loading from the WLA is not exceeded under normal conditions. In effect then, the limits must "force" treatment plant performance, which, after considering acceptable effluent variability, will only have a low statistical probability of exceeding the WLA and will achieve the desired loadings*." (TSD, p. 97) Therefore, although there are slight differences in the effluent limit, the WLA is identical, so the level of treatment needed to maintain compliance with the effluent limit remains the same. Consequently, the effluent limit is not less stringent than the previous Order, and there is no backsliding.

WQBEL's for dichlorobromomethane were calculated based on monitoring data collected between April 2010 and April 2014, which is representative of current treatment plant performance. Therefore, Central Valley Water Board staff considers this effluent data to be the most representative and reliable dataset to use to determine current Facility performance and development of WQBEL's.

The MDEL for dichlorobromomethane in this Order was calculated as a higher value than in previous Order R5-2010-0002-01. However, the AMEL remains the same. The WQBEL's in both Orders are based on the same WLA (i.e., the WLA is based on the CTR human health criterion for dichlorobromomethane). The reason for the change in the AMEL and MDEL is due to a change in the variability of the effluent data for dichlorobromomethane. The WQBEL's, however, are equally protective of the beneficial uses. The level of treatment needed to maintain compliance with the effluent limits remains the same. Consequently, the effluent limits are not less stringent than the previous permit, and there is no backsliding.

4. Antidegradation Policies

a. **Surface Water.** This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and 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 boron, chloride, copper, iron, lead, manganese, selenium, and silver based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. This Order relaxes existing effluent limitations for ammonia during the winter season based on updated pH and temperature data used to calculate the applicable ~~2013~~ 1999 NAWQC criteria~~on~~ for

the protection of aquatic life. The effluent limits for electrical conductivity are also relaxed because 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. A performance-based limit for EC of 1,250 µmhos/cm has been established until site-specific objectives are developed. The limit takes into consideration water conservation and drought effects, which accounts for lower influent wastewater flows and higher EC concentrations. Although the EC limit is slightly higher than current EC concentrations, the mass loading will be unchanged due to lower wastewater flows. Therefore, the performance-based limit ensures the mass of salinity does not increase. 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 utilizes an emergency storage basin and biosolids drying beds. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). Percolation from the ponds and drying beds may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with 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:

i. the degradation is limited in extent;

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

iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and

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

The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCL's in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-

producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

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.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. 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 30 May 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to 30 May 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-~~23.~~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	20[2]	--	--	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	1,668	2,502	3,336	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[3]	1,668	2,502	3,336	--	--	
	% Removal	85	--	--	--	--	CFR

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Priority Pollutants							
Bis (2-ethylhexyl) phthalate	µg/L	30	--	86	--	--	CTR
Carbon Tetrachloride	µg/L	4.2	--	8.5	--	--	CTR
Chlorodibromo-methane	µg/L	7.6	--	12	--	--	CTR
Dichlorobromo-methane	µg/L	11	--	17	--	--	CTR
Mercury, Total Recoverable	lbs/year	0.82[3]	--	--	--	--	PB
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L	350	820	--	--	--	SEC MCL
Ammonia Nitrogen, Total (as N) (16 April – 31 October)	mg/L	~~1.6~~0.94	~~2.7~~2.1	--	--	--	NAWQC
	lbs/day[3]	~~267~~160	~~450~~350	--	--	--	
~~Boron, Total Recoverable~~	~~µg/L~~	~~0.8[4]/1.0[5]~~	~~--~~	~~2.0[4]/2.6[5]~~	~~--~~	~~--~~	~~TMDL~~
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	2.1	4.7	--	--	--	NAWQC
	lbs/day[1]	350	784	--	--	--	
Chlorine, Total Residual	mg/L	0.011[6]	--	0.019[7]	--	--	NAWQC
Chlorpyrifos	µg/L	[8]	--	[9]	--	--	BP
Diazinon	µg/L	[8]	--	[9]	--	--	BP
Electrical Conductivity @25°C	µmhos/ cm	~~1,100~~ 1,250[10]	--	--	--	--	TMDL
Nitrate Nitrogen, Total (as N)	mg/L	31	38	--	--	--	MCL
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	--	--	[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.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
PB – Based on Facility performance.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
SEC MCL – Based on the Secondary Maximum Contaminant Level.
~~TMDL – Based on the TMDL for salinity and boron in the lower San Joaquin River.~~
Title 22 – Based on CA Department of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
2. The average dry weather flow shall not exceed 20 MGD.
3. Based on an average dry weather flow of 20 MGD.
4. Applicable 15 March through 15 September.
5. Applicable 16 September through 14 March.
6. Applied as a 4-day average effluent limitation.
7. Applied as a 1-hour average effluent limitation.
8. Average Monthly Effluent Limitation

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

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

9. Maximum Daily Effluent Limitation

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

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

10. Applied as an annual average effluent limitation.
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 – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications

Treated wastewater discharged for reclamation is regulated under separate waste discharge requirements and must meet the requirements of CCR, Title 22.

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

the following reclamation specifications requiring compliance with Title 22, Division 4, Chapter 3, Water Recycling Criteria.

1. **Reclamation Specifications 1 through 3.** These specifications are based on Title 22, Division 4, Section 60301 et. seq.

2. **Reclamation Specification 4.** This specification is based on Title 22, Sections 60201.230 and 60304 (Disinfected Tertiary Recycled Water).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. 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. **pH.** Order R5-2010-0002-01 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. 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 does not require a receiving water limitation for pH change.

   In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the pH 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 CFR §131.12).

   Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worse-case conditions. Although ammonia criteria are based on pH, and the pH receiving water limitations are more lenient in this Order than in the previous permit, the fixed ammonia limits are developed to protect under worse-case pH conditions. Therefore the relaxation of the pH 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 pH 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 CFR §131.12).

The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current U.S. EPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

b. **Turbidity.** Order R5-2010-0002-01 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 CFR §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 CFR §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.

c. **Dissolved Oxygen.** The dissolved oxygen receiving surface water limitation is based on the Basin Plan's dissolved oxygen water quality objective, which contains three parts (see Section V.A.5 of the Limitations and Discharge Requirements). The Facility provides a high level of treatment including tertiary filtration and nitrification, which results in minimal dissolved oxygen impacts in the receiving water. Consequently, weekly receiving water monitoring is required in this Order and is sufficient to evaluate the impacts of the discharge and compliance with this Order. The weekly monitoring data will be used to determine compliance with the third part of the dissolved oxygen receiving water limitation, and will be assessed, at minimum, using effluent and receiving water dissolved oxygen data to ensure the discharge does not cause the dissolved oxygen concentrations in the receiving water to be reduced below 7 mg/L at any time.

B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCL's in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a 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 submits an approved report to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable 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. **Mixing Zone/Dilution Study for pH.** This Order requires instantaneous minimum and maximum effluent limitations for pH of 6.5 to 8.5, respectively, based on the Basin Plan objectives. The Discharger has requested a lower pH effluent limitation. If the Discharger provides a mixing zone/dilution study supporting the application of dilution credits for pH that is consistent with the mixing zone requirements and

guidance in the Basin Plan and U.S. EPA guidance, this Order may be reopened to modify the effluent limitations for pH.

f. **Bay-Delta Plan South Delta Salinity Objectives Update.** The State Water Board's 1995 Bay-Delta Plan contains salinity objectives for the San Joaquin River at Vernalis to protect agricultural and beneficial uses of water in the southern Delta. 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 in this Order. Therefore, this Order may be reopened to modify salinity requirements, as appropriate, in accordance with changes to the Bay-Delta Plan.

g. **Electrical Conductivity (EC) Effluent Limitations.** The Central Valley Water Board completed a TMDL for salt and boron in the Lower San Joaquin River and amended the Basin Plan. In accordance with the TMDL a Basin Plan Amendment is under development that will establish salinity water quality objectives for the Lower San Joaquin River from the Merced River to Vernalis. Should the Central Valley Water Board adopt revisions to the Bay Delta Plan that consider the application of salinity objectives to municipal discharges for the Lower San Joaquin River from the Merced River to Vernalis, this Order may be reopened to modify the effluent limitations for EC as appropriate.

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 April 2010 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 requires the Discharger to develop a TRE Workplan in accordance with U.S. EPA guidance. In addition, the 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-1), 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.

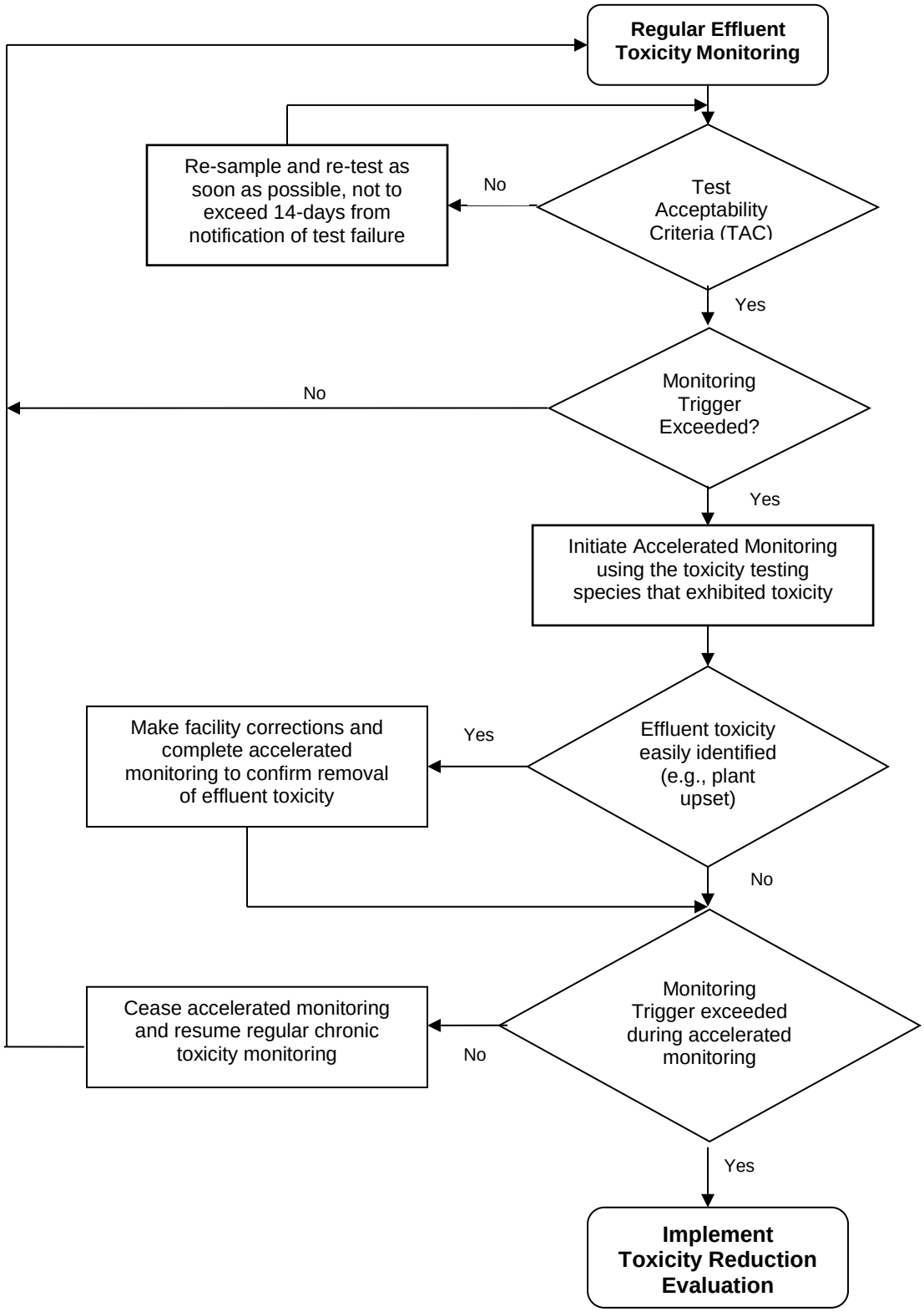
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

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~~3
WET Accelerated Monitoring Flow Chart



b. **Mixing Zone Validation Study.** The Discharger previously conducted a mixing zone study to determine the size of the mixing zones for human health constituents and nitrate. This Order requires the Discharger to conduct a mixing zone validation study to verify the results of the mixing zone study. The Discharger submitted a *Mixing Zone Field Study Work Plan* to the Central Valley Water Board on 18 August 2014, providing a work plan for conducting the validation study. The Central Valley Water Board approved the work plan and, at the time this Order was adopted, the Discharger was in the process of completing the mixing zone study. The mixing zone study shall be completed in accordance with the 18 August 2014 *Mixing Zone Field Study Work Plan* and submitted to the Central Valley Water Board on or before **1 April 2016**.

c. **Groundwater Water Quality Characterization.** The Discharger monitors groundwater underlying the Facility via five, 1.5-inche diameter (ID) iron pipe monitoring wells and two, 6-inch diameter iron dewatering wells. The Discharger submitted a report to the Central Valley Water Board on 17 September 2014 that analyzed groundwater data form all seven groundwater wells at the Facility. The report concluded that the apparent upgradient well is GW-002, and not GW-001 as stated in the previous permit. The cause of this is thought to be partly due to the constant pumping of groundwater by the dewatering wells on the site, which has caused a gradual shifting of the groundwater gradient underlying the Facility. The report also recommends the continuation of quarterly monitoring and reporting, as well as sampling, at all seven wells at the site. This Order contains a Special Provision that requires the Discharger conduct a Groundwater Characterization Study, to be submitted by 1 February 2018, in order to determine the natural background quality of the groundwater underlying the Facility.

For each groundwater monitoring parameter identified in the Monitoring and Reporting Program, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10), and shall be based on data from at least twelve consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations in the compliance monitoring wells with the calculated background concentration. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. The technical report shall be prepared by or under the direction of appropriately qualified professional(s) and shall bear the professional's signature and stamp.

d. **Best Practical Treatment or Control (BPTC).** If the groundwater monitoring results show that the discharge of waste is threatening to cause or has caused groundwater to contain waste constituents in concentrations statistically greater than background water quality, then by **1 May 2018** the Discharger shall submit a BPTC Evaluation Workplan that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the facilities' waste management system to determine best practicable treatment or control for each the waste constituents of concern. The workplan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule

for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. The technical report shall be prepared by or under the direction of appropriately qualified professional(s) and shall bear the professional's signature and stamp.

3. Best Management Practices and Pollution Prevention

a. **Salinity Source Control Program.** This provision requires the Discharger to provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the San Joaquin River.

4. Construction, Operation, and Maintenance Specifications

a. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.

b. **Emergency Storage Basin Operating Requirements**. The operation and maintenance specifications for the emergency storage basin are necessary to ensure proper operation of the emergency storage basin and minimize the potential for impacts to groundwater quality.

The operation and maintenance specifications for the emergency storage basin are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from Order R5-2010-0002-01. In addition, reporting requirements related to use of the emergency storage basin are required to monitor their use and the potential impact on groundwater.

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 publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. Part 403.

ii. The Discharger has an approved pretreatment program. The Discharger's pretreatment program includes 12 noncategorical significant industrial users (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.

~~Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by1 December 2006.~~

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 accepts hauled-in ADM for direct injection into its anaerobic digester for co-digestion. This Order requires the Discharger to develop

[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.

and implement standard operating procedures (SOP's) within 180 days of the permit effective date. The requirements of the SOP's are discussed in Section VI.C.5.d.

6. Other Special Provisions

a. Consistent with Order R5-2010-0002-01, 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.

7. Compliance Schedules – Not Applicable.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. 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 for flow (continuous), BOD_5 (daily), pH (daily), TSS (daily), electrical conductivity (weekly), and total dissolved solids (weekly) have been retained from Order No. R5-2010-0002-01.

2. Influent monitoring for priority pollutants has not been retained from Order R5-2010-0002-01 as it is not necessary to assess compliance with permit conditions.

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 (continuous), TSS (daily), carbon tetrachloride (monthly), chlorodibromomethane (monthly), dichlorobromomethane (monthly), mercury (monthly), aluminum (monthly), ammonia (weekly), chlorine residual (continuous), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (monthly), methylmercury (monthly), nitrate (monthly), temperature (daily), total coliform organisms (daily), total dissolved solids (weekly), and turbidity (continuous) have been retained from Order No. R5-2010-0002-01.

3. Monitoring data collected over the previous permit term for boron, chloride, copper, lead, selenium, iron, manganese, oil and grease, settleable solids, and silver did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2010-0002-01.

4. Order R5-2010-0002-01 required quarterly monitoring for bis (2-ethylhexyl) phthalate. Monitoring data for bis (2-ethylhexyl) phthalate indicates reasonable potential to cause or contribute to an exceedance of the CTR criterion and this Order establishes effluent limitations for bis (2-ethylhexyl) phthalate. Therefore, this Order increases the monitoring frequency to monthly to determine compliance with the applicable effluent limitations.

5. Order R5-2010-0002-01 required quarterly monitoring for chlorpyrifos and diazinon. Chlorpyrifos and diazinon were not detected in the effluent during the term of Order R5-2010-0002-01. Therefore, this Order reduces the monitoring frequency to annually. The Central Valley Water Board finds this frequency is sufficient to continue to characterize the effluent.

6. This Order establishes monthly effluent monitoring requirements for nitrite and nitrate plus nitrite to characterize the discharge.

7. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern monthly during the year 2017. See section IX.C of the Monitoring and Reporting Program (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

8. Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code*." DDW 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.** Consistent with Order R5-2010-0002-01, monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Consistent with Order R5-2010-0002-01, quarterly 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, Section VIII.A, 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, Section VIII.A, 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. The Discharger completed the bypass of Harding Drain during the term of Order R5-2010-0002-01, and effluent is now only discharged to the San Joaquin River. As such, receiving monitoring locations have been revised. Receiving water Monitoring Locations RSW-001, RSW-002, RSW-003, RSW-004 and RSW-006 from Order R5-2010-0002-01 have been discontinued. A new upstream receiving water monitoring location has been established in the San Joaquin River 1,800 feet upstream of the discharge at Monitoring Location RSW-001, which is the nearest location that can be safely accessed under normal river flow conditions. Receiving water Monitoring Location RSW-005 from Order R5-2010-0002-01 is now Receiving Water Monitoring Location RSW-002 (in the San Joaquin River 50 feet above the confluence with Harding Drain). Monitoring requirements at Monitoring Locations RSW-001 and RSW-002 are necessary to characterize the impact of the discharge on the San Joaquin River.

d. Upstream and downstream receiving water monitoring requirements have been retained for flow (weekly, upstream only), pH (weekly), ammonia (monthly), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (quarterly), temperature (weekly), and turbidity (weekly).

e. Order R5-2010-0002-01 required quarterly upstream and downstream receiving water monitoring for chlorpyrifos and diazinon. These constituents were not detected in the effluent or receiving water during the term of Order R5-2010-0002-01. Therefore, receiving water monitoring requirements for chlorpyrifos and diazinon have not been retained in this Order.

f. The effluent limitations for total coliform organisms are expected to ensure compliance with the receiving water limitations for fecal coliform organisms. Therefore, this Order discontinues receiving water monitoring requirements for fecal coliform organisms.

g. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires upstream receiving water monitoring for priority pollutants and other pollutants of concern monthly during the year 2017, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See section IX.C of the Monitoring and Reporting Program

(Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

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.

d. Quarterly monitoring for depth to groundwater, groundwater elevation, gradient, gradient direction, electrical conductivity, total dissolved solids, fixed dissolved

solids, pH, total coliform organisms, total nitrogen, nitrate nitrogen, ammonia (as NH_4), and total kjeldahl nitrogen is retained from Order R5-2010-0002-01. Annual monitoring for standard minerals is also retained from Order R5-2010-0002-01.

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 R5-2010-0002-01, this Order requires semi-annual monitoring for standard minerals and quarterly monitoring for electrical conductivity and total dissolved solids.

3. Land Discharge Monitoring

Land discharge monitoring is required to ensure compliance with the Storage Pond and Land Disposal Operating Requirements in section VI.C.4 of this Order. Monitoring frequencies and sample types for dissolved oxygen (weekly), freeboard (weekly), levee condition (weekly), and odors (weekly) have been retained from Order R5-2010-0002-01. Monitoring requirements for flow to basin (once per event) have been added. Monitoring requirements for electrical conductivity and pH have been removed.

4. Recycling Monitoring

Recycling monitoring is required to assess compliance with Title 22, California Code of Regulations, Section 60301, et. seq. Monitoring requirements are retained from Order R5-2010-0002-01 and are consistent with monitoring requirements contained in SWRCB Order WQ 2014-0090-DWQ, General Order for water recycling.

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 City of Turlock Regional Water Quality Control Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested 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 posting of the Notice of Public Hearing concerning the WDRs at the Turlock City Hall (government center) on 22 January 2015and the City of Turlock Regional Water Quality Control Facility on 23 January 2015, 3). The Notice of Public Hearing was also published in The Turlock Daily Journal on 31 January 2015 and on the Central Valley Water Board's Website. ~~the following <**Describe Notification Process (e.g., newspaper name and date)**>~~

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 27 February 2015.~~<**Date**>.~~

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 Branch 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 Tyson Pelkofer at (916) 464-4853.

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	261[1]	--	200	750[2]	--	--	--	--	200	Yes
Ammonia Nitrogen, Total (as N)	mg/L	4.4	<0.5	~~3.15~~ 1.02	~~3.15~~ 5.62[2]	~~1.69~~ 1.02[3]	--	--	--	--	Yes
Bis (2-ethylhexyl) Phthalate	µg/L	6.6	1	1.8	--	--	1.8	5.9	--	4	Yes
Boron, Total Recoverable	µg/L	279	~~877[4]~~ 506[4]	800	--	--	--	--	800	--	~~Yes~~No
Carbon Tetrachloride	µg/L	0.5	<0.2	0.25	--	--	0.25	4.4	--	0.5	Yes
Chloride	mg/L	183	--	230	860	230	--	--	--	250	No
Chlorpyrifos	µg/L	<0.01	<0.01	0.015	--	--	--	--	0.015	--	No[5]
Chlorodibromo methane	µg/L	12.8	<0.2	0.41	--	--	0.41	34	--	80[6]	Yes
Copper, Total Recoverable	µg/L	8.5	33	8.8	13	8.8	1,300	--	--	1,000	No
Diazinon	µg/L	<0.02	<0.02	0.10	--	--	--	--	0.10	--	No[5]
Dichlorobromo methane	µg/L	41.9	<0.2	0.56	--	--	0.56	46	--	80[6]	Yes
Electrical Conductivity @25°C	µmhos/cm	~~963[1]~~ 1,094[1]	~~1,237[1]~~ 2,430	5	--	--	--	--	--	--	Indeterminate
Iron, Total Recoverable	µg/L	214[1]	--	300	--	--	--	--	--	300	No
Lead, Total Recoverable	µg/L	<0.17	--	2.9	74	2.9	--	--	--	15	No
Manganese, Total Recoverable	µg/L	24[1]	--	50	--	--	--	--	--	50	No
Mercury, Total Recoverable	µg/L	0.013	<0.3	0.050	--	--	0.050	0.051	--	2	Yes[5]
N-nitrosodi-n-propylamine	µg/L	0.7	<0.3	0.005	--	--	0.005	1.4	--	--	Inconclusive[5]

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Nitrate Nitrogen, Total (as N)	mg/L	20.8	--	10	--	--	--	--	--	10	Yes
Selenium, Total Recoverable	µg/L	0.43	2.6	5	20	5	170	4,200	5	50	No
Silver, Total Recoverable	µg/L	0.03	<0.6	3.5	3.5	--	--	--	--	100	No

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) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(4) Based on samples collected between April 2010 and April 2014.
(5) See section IV.C.3 of the Fact Sheet (Attachment F) for a discussion of the RPA results.
(6) Represents the Primary MCL for total trihalomethanes, which include bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
(7) Criterion to be compared to the MEC.
(8) Criterion to be compared to the maximum upstream receiving water concentration.

ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations

Parameter	Units	Criteria	Mean Background Concentration	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Aluminum, Total Recoverable	µg/L	200	N/A	N/A	2.32	1.77	350[1]	--	820[1]
Bis (2-ethylhexyl) phthalate	µg/L	1.8	0.38	19.9	2.87	--	30	86	--
Carbon Tetrachloride	µg/L	0.25	<0.05	19.9	2.01	--	4.2	8.5	--
Chlorodibromomethane	µg/L	0.41	<0.05	19.9	1.68	--	7.6	12	--
Dichlorobromomethane	µg/L	0.56	<0.05	19.9	1.60	--	11	17	--
Nitrate Nitrogen, Total (as N)	mg/L	10	1.19[2]	2.4	1.21	--	31	--	38

1 Calculated by setting the LTA equal to the Secondary MCL of 200 µg/L and using the AMEL multiplier to set the AMEL. The AWEL was calculated from the AMEL using the MDEL/AMEL multiplier. (Table 2 of the SIP)
2 Maximum background concentration.

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) (16 April – 31 October)	mg/L	~~3.15~~ 5.62	~~1.69~~ 1.02	--	--	0.32	~~1.0~~ 1.80	0.78	~~1.32~~ 0.79	~~1.55~~ 1.19	2.68	--	~~1.6~~ 0.94	~~2.7~~ 2.1	--
Ammonia Nitrogen, Total (as N) (1 November – 15 April)	mg/L	5.62	2.25	--	--	0.32	1.80	0.78	1.76	1.19	2.68	--	2.1	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.