CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0077950
ORDER R5-2020-0015

WASTE DISCHARGE REQUIREMENTS
FOR THE CITY OF WOODLAND, WATER POLLUTION CONTROL FACILITY
YOLO COUNTY

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

Table 1. Discharger Information

Discharger:	City of Woodland
Name of Facility:	Water Pollution Control Facility
Facility Street Address:	42929 County Road 24
Facility City, State, Zip:	Woodland, CA 95776
Facility County:	Yolo County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Tertiary Treated Municipal Wastewater	38° 40' 51" N	121° 38' 38" W	Tule Canal
002	Secondary Treated or Untreated Municipal Wastewater	--	--	Groundwater

Table 3. Administrative Information

This Order was Adopted on:	**16 April 2020**
This Order shall become effective on:	**1 June 2020**
This Order shall expire on:	**31 May 2025**
The Discharger shall file a Report of Waste Discharge (ROWD) as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of an NPDES permit no later than:	**31 May 2024**
The United States Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	**Major Discharge**

I, Patrick Pulupa, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **16 April 2020**.

Patrick Pulupa 2020.04.28 10:37:31 -07'00'
Water Boards

PATRICK PULUPA, Executive Officer

WASTE DISCHARGE REQUIREMENTS
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ATTACHMENTS

I. FACILITY INFORMATION

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

II. FINDINGS

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

A. Legal Authorities. This Order serves as waste discharge requirements (WDR's) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDR's in this Order.

B. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of Public Resources Code. Additionally, the adoption of land discharge requirements for the Facility constitutes permitting of an existing facility that is categorically exempt from the provisions of CEQA pursuant to California Code of Regulations (CCR), title 14, section 15301.

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

D. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, V.B, VI.C.2.a, VI.C.4, VI.C.6, and VI.C.7.a, are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

E. Monitoring and Reporting. 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with

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

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

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

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

THEREFORE, IT IS HEREBY ORDERED that Order R5-2014-0120-01 and Time Schedule Order R5-2011-0907-01 are rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for violations of the previous Orders.

III. DISCHARGE PROHIBITIONS

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

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

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

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

E. **Average Dry Weather Flow**. Discharges to surface water at Discharge Point 001 exceeding an average dry weather flow of 10.4 million gallons per day (MGD) are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations – Discharge Point 001

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celsius	milligrams per liter (mg/L)	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	--
Ammonia	mg/L	1.1	1.9	--
Selenium, Total Recoverable	micrograms per liter (µg/L)	4.0	--	8.0

b. **pH:**

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

ii. 8.5 SU as an instantaneous maximum.

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

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

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

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

e. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured at Monitoring Location UVS-001 as described in the MRP, Attachment E:

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

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

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

f. **Methylmercury.** Effective 31 December 2030, the effluent calendar year annual methylmercury load shall not exceed 0.43 grams, in accordance with the Delta Mercury Control Program.

g. **Electrical Conductivity.** The effluent calendar year annual average electrical conductivity concentration shall not exceed 1,250 micromhos/centimeter (µmhos/cm).

h. **Chlorpyrifos and Diazinon.** During periods when the Yolo Bypass is flooded, effluent chlorpyrifos and diazinon concentrations shall not exceed the sum of one (1.0) as identified below:

i. **Average Monthly Effluent Limitation**

$$Savg = [(Cavg/0.012) + (Davg/0.079)] \leq 1.0$$

Where:
Cavg = average monthly chlorpyrifos effluent concentration in µg/L
Davg = average monthly diazinon effluent concentration in µg/L

ii. **Maximum Daily Effluent Limitation**

$$Smax = [(Cmax/0.025) + (Dmax/0.16)] \leq 1.0$$

Where:
Cmax = maximum daily chlorpyrifos effluent concentration in µg/L
Dmax = maximum daily diazinon effluent concentration in µg/L.

2. Interim Effluent Limitations – Discharge Point 001

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

a. **Mercury, Total. Effective immediately and until 30 December 2030.** The effluent calendar year annual total mercury load shall not exceed 481 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (Section IV.A.1.f).

B. Land Discharge Specifications – Discharge Point 002

1. Effluent Limitations for Discharging to Ponds – Discharge Point 002

Effective 31 May 2029, the Discharger shall maintain compliance with the following effluent limitations specified in Table 5 at Discharge Point 002. Unless otherwise specified, compliance shall be measured at Monitoring Location EFF-002, and as described in the Monitoring and Reporting Program, Attachment E:

Table 5. Effluent Limitations for Discharging to Ponds – Discharge Point 002

Parameter	Units	Average Monthly	Maximum Daily
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	40	80
Nitrate as N	mg/L	10	--

C. Recycling Specifications – Not Applicable to this Order.

See State Board Order WQ 2016-0068-DDW.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Tule Canal:

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 CFR section 131.12.);

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

    f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15.

10. **Radioactivity**. 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.

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

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

13. **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.

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° Fahrenheit. 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. **Effective 31 May 2029,** release of waste constituents from any portion of the Facility shall not cause groundwater to contain any of the specified constituents in a concentration statistically greater than the maximum allowable concentration shown in Table 6, below, or current groundwater quality, whichever is greater. The wells to which these requirements apply are specified in the Monitoring and Reporting Program, Attachment E.

Table 6. Groundwater Limitations

Constituent	Units	Water Quality Objective
Electrical Conductivity (EC)	µmhos/cm	900
Nitrate nitrogen, Total (as N)	mg/L	10
Total Coliform Organisms	MPN/100mL	Less than 2.2 (<2.2)

Table 6 Notes:

Note 1. "Current groundwater quality" means the quality of groundwater as evidenced by monitoring completed as of the adoption date of this Order for each of the groundwater monitoring wells listed in section VIII.F of the Monitoring and Reporting Program.

VI. PROVISIONS

A. Standard Provisions

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

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

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

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

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

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

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

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

      The causes for modification include:

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

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

      iii. Change in sludge use or disposal practice. Under 40 CFR section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

   c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for

a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

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

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

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

   ii. Controls any pollutant limited in the Order.

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

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

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

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

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

i. Safeguard to electric power failure:

   i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

   ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures

experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

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

k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall

be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

n. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

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

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

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

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

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

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

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

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

c. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. Phase 1 has been completed; Progress Reports were submitted in October 2015 and Final Study reports were submitted in October 2018. The start of Phase 2 and the final compliance date are uncertain at the time this Order was adopted. This Order may be reopened to address changes to the Delta Mercury Control Program.

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an

effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.

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

f. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** The Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting. These programs, once effective, could change how the Central Valley Water Board permits discharges of salt and nitrate. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. This Order may be amended or modified to incorporate any newly-applicable requirements.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Toxicity Reduction Evaluation Requirements.** This Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.

i. **Numeric Toxicity Monitoring Triggers.** Monitoring triggers are expressed as numeric Toxicity Units (TUc; where TUc = 100/NOEC) and/or as percent effect. The monitoring triggers for *Ceriodaphnia dubia, Pimephales promelas,* and *Selenastrum capricornutum* are shown in Table 7 below. The monitoring triggers are not effluent limitations; they are the toxicity thresholds at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection ii, below.

Table 7. Chronic Toxicity Triggers

Test Organism	Numeric Trigger	Percent Effect Trigger
Ceriodaphnia dubia	1 TUc	25 percent at 100 percent effluent
Pimephales promelas	1 TUc	25 percent at 100 percent effluent
Selenastrum capricornutum	2 TUc	25 percent at 50 percent effluent

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

(a) **Initial Toxicity Check**. For *Ceriodaphnia dubia* and *Pimephales promelas,* if the result is greater than the numeric trigger and less than or equal to 1.3 TUc OR for *Selenastrum capricornutum* if the result is greater than the numeric trigger OR the percent effect is less than the appropriate percent effect trigger, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, proceed to step (b).

(b) **Evaluate 6-week Median**. The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. For *Ceriodaphnia dubia* and *Pimephales promelas,* if the 6-week median is greater than 1.3 TUc or for *Selenastrum capricornutum* if the 6-week median is greater than the numeric trigger AND the percent effect is greater than the applicable percent effect trigger, then proceed with subsection (c). Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring. See Compliance Determination Section VII.L for procedures for calculating 6-week median.

(c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a

site-specific TRE or participate in an approved TES as described in the following subsections.

(d) **Toxicity Evaluation Study.** For *Ceriodaphnia dubia* and *Pimephales promelas,* if the percent effect is ≤ 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. For *Selenastrum capricornutum,* if the percent effect is ≤ 50 percent at 50 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

(e) **Toxicity Reduction Evaluation.** For *Ceriodaphnia dubia* and *Pimephales promelas,* if the percent effect is > 50 percent at 100 percent effluent, or for *Selenastrum capricornutum,* if the percent effect is > 50 percent at 50 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:

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

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

3. Best Management Practices and Pollution Prevention

a. **Mercury Pollution Prevention Plan Progress Reports**. The Discharger submitted a Pollution Prevention Plan for Mercury, on 25 July 2015 in accordance with Water Code section 13263.3(d)(3). Progress Reports are submitted annually per the Technical Reports Table in the MRP.

b. **Salinity Evaluation and Minimization Plan Summary Evaluation.** The Discharger shall continue to implement the existing salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility. The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge per the Technical Reports Table in the MRP.

4. Construction, Operation and Maintenance Specifications

a. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed:

i. 2 NTU as a daily average;

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

iii. 10 NTU, at any time.

b. **Ultraviolet (UV) Disinfection System Operating Specifications.** The UV disinfection system must be operated in accordance with the Discharger's Title 22 Engineering Report, approved by the State Water Resources Control Board, Division of Drinking Water in a letter dated 25 June 2015, which includes an operations and maintenance program that assures adequate disinfection to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water. The following UV disinfection operating specifications will be evaluated to determine compliance with this requirement:

i. **UV Dose**. The minimum hourly average UV dose in the UV reactor shall be 160 millijoules per square centimeter (mJ/cm^2).

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

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

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

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

c. **Algae Production Ponds and Emergency Flow Equalization Pond Operating Requirements**.

i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

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

iii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

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

(b) Weeds shall be minimized.

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

iv. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond 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.

v. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

vi. Prior to the onset of the rainy season of each year, available pond storage capacity shall at least equal the volume necessary to comply with section VI.C.4.c.v, above.

d. **Water Recycling Requirements**. Not Applicable to this Order. See State Board Order WQ-2016-0068-DDW.

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

a. **Pretreatment Requirements**

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. Part 403, including any subsequent regulatory revisions to 40 C.F.R. Part 403. Where 40 C.F.R. Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of

pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.

ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

iii. The Discharger shall perform the pretreatment functions as required in 40 C.F.R. Part 403 including, but not limited to:

(a) Implement the necessary legal authorities as provided in 40 CFR Part 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 C.F.R. sections 403.5 and 403.6;

(c) Implement the programmatic functions as provided in 40 C.F.R. section 403.8(f)(2); and

(d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. section 403.8(f)(3).

iv. **Pretreatment Reporting Requirements.** Pretreatment reporting requirements are included in the Monitoring and Reporting Program, section X.D.5 of Attachment E.

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

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or

reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

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

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

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

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

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

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the State Water Board, Division of Drinking Water (DDW) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

7. Compliance Schedules

a. **Compliance Schedule for Pond Effluent Limitations and Groundwater Limitations.** This Order requires compliance with the pond discharge effluent and groundwater limitations by **31 May 2029**. The Discharger shall comply with the time schedule shown in the Technical Reports Table to ensure compliance with the final effluent limitations. Notification of Full Compliance must be signed by a Legally Responsible Official (LRO).

b. **Compliance Schedule for Final Effluent Limitation for Methylmercury at Discharge Point 001.** This Order requires compliance with the final effluent limitations for methylmercury in Section IV.A.1.e of this Order. The Discharger shall comply with the time schedule shown in the Technical Reports Table to ensure compliance with the final effluent limitations. Notification of Full Compliance must be signed by a Legally Responsible Official (LRO).

VII. COMPLIANCE DETERMINATION

A. Average Dry Weather Flow Discharge Prohibition (Section III.E). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow discharge prohibition will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

B. BOD_5 and TSS Effluent Limitations (Section IV.A.1.a, IV.A.1.c, IV.B.1, IV.B.2, and IV.B.3). Compliance with the effluent limitations for BOD_5 and TSS required in Waste Discharge Requirements section IV.A.1.a, IV.B.1, IV.B.2, and IV.B.3 shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Waste Discharge Requirements section IV.A.1.c for percent removal shall be calculated using the arithmetic mean of 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.

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

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

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

implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

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

E. Priority Pollutant Effluent Limitations (Section IV.A.1.a). Compliance with effluent limitations for priority pollutants shall be determined in accordance with section 2.4.5 of the SIP, as follows:

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

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

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

3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month or with an average weekly effluent limitation (AWEL) and more than one sample result is available in a week, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

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

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

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

4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall **not** be deemed out of compliance.

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

For *Ceriodaphnia dubia* and *Pimephales promelas*, where the median chronic toxicity units exceed 1 TUc (as 100/NOEC) for any end point, the Discharger will be deemed out of compliance with the chronic toxicity effluent trigger if the median chronic toxicity units for any endpoint also exceed a reporting level of 1.3 TUc (as $100/EC_{25}$) AND the percent effect at 100 percent effluent exceeds 25 percent. The percent effect used to evaluate compliance with the chronic toxicity effluent trigger shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent trigger.

For *Selenastrum capricornutum*, where the median chronic toxicity units exceed 2 TUc (as 100/NOEC) for any endpoint, the Discharger will be deemed out of compliance with the chronic toxicity effluent trigger if the median percent effect at 50 percent effluent for the same endpoint also exceeds 25 percent. The percent effect used to evaluate compliance with the chronic toxicity effluent limitation shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent limitation.

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

data may be used, if scientifically defensible, in conjunction with other receiving water data, effluent data, receiving water flow data, and other pertinent information to determine whether or not a discharge is in compliance with this Order

ATTACHMENT A – DEFINITIONS

1Q10
The lowest one-day flow with an average reoccurrence frequency of once in ten years.

7Q10
The lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years

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

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

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

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

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

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

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

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

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

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

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

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

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

Electrical Conductivity (EC)
The measure of a material's ability to conduct an electrical current, known as electrical conductivity or specific conductance, is measured in µmhos/cm, where mhos are also known as siemens.

Effect Concentration (EC_{25}, EC_{50})
A point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapacitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). EC_{25} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 25 percent of the test organisms. EC_{50} is a point estimate of the toxicant concentration that would cause an observable adverse effect in 50 percent of the test organisms.

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

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

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

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

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

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

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

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

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

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

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If

the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a stepwise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an

evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAPS

FIGURE B-1 - VICINITY MAP

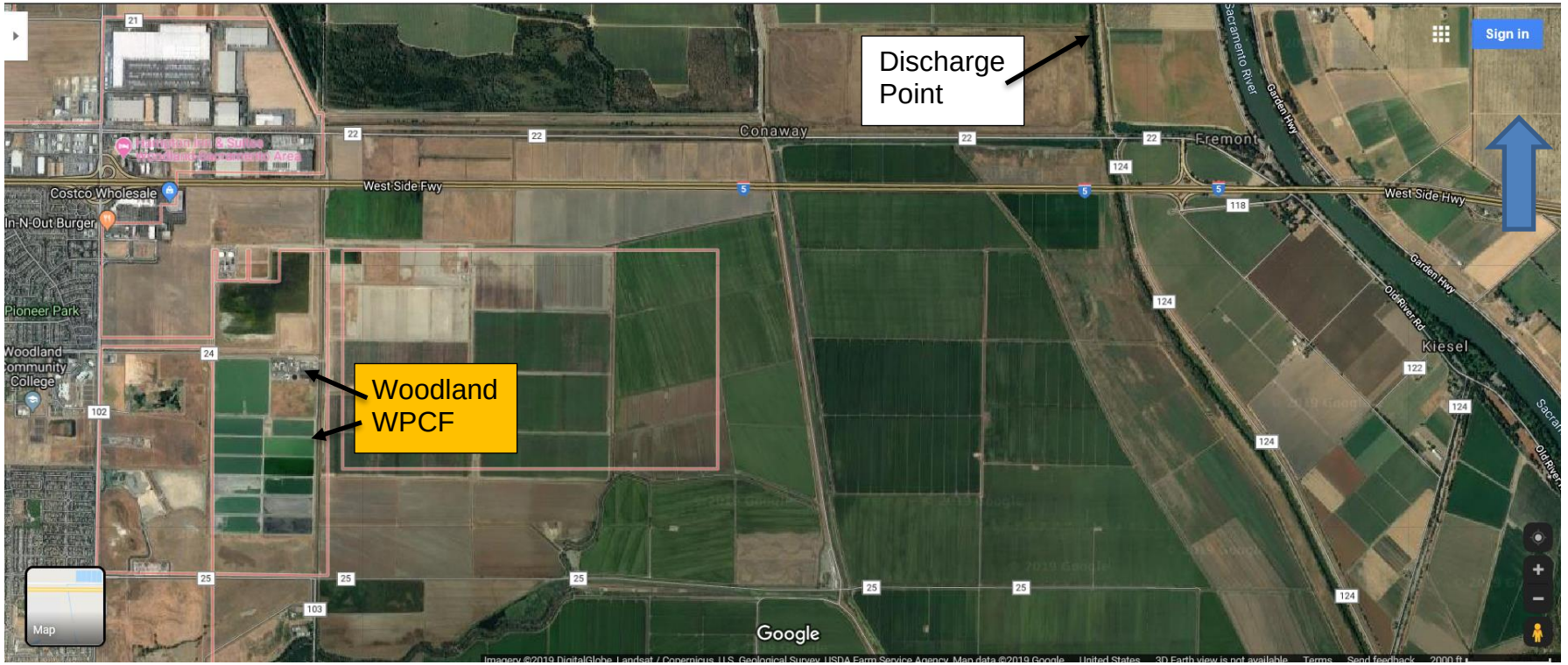


FIGURE B-2 – POND SYSTEM AND GROUNDWATER MONITORING NETWORK

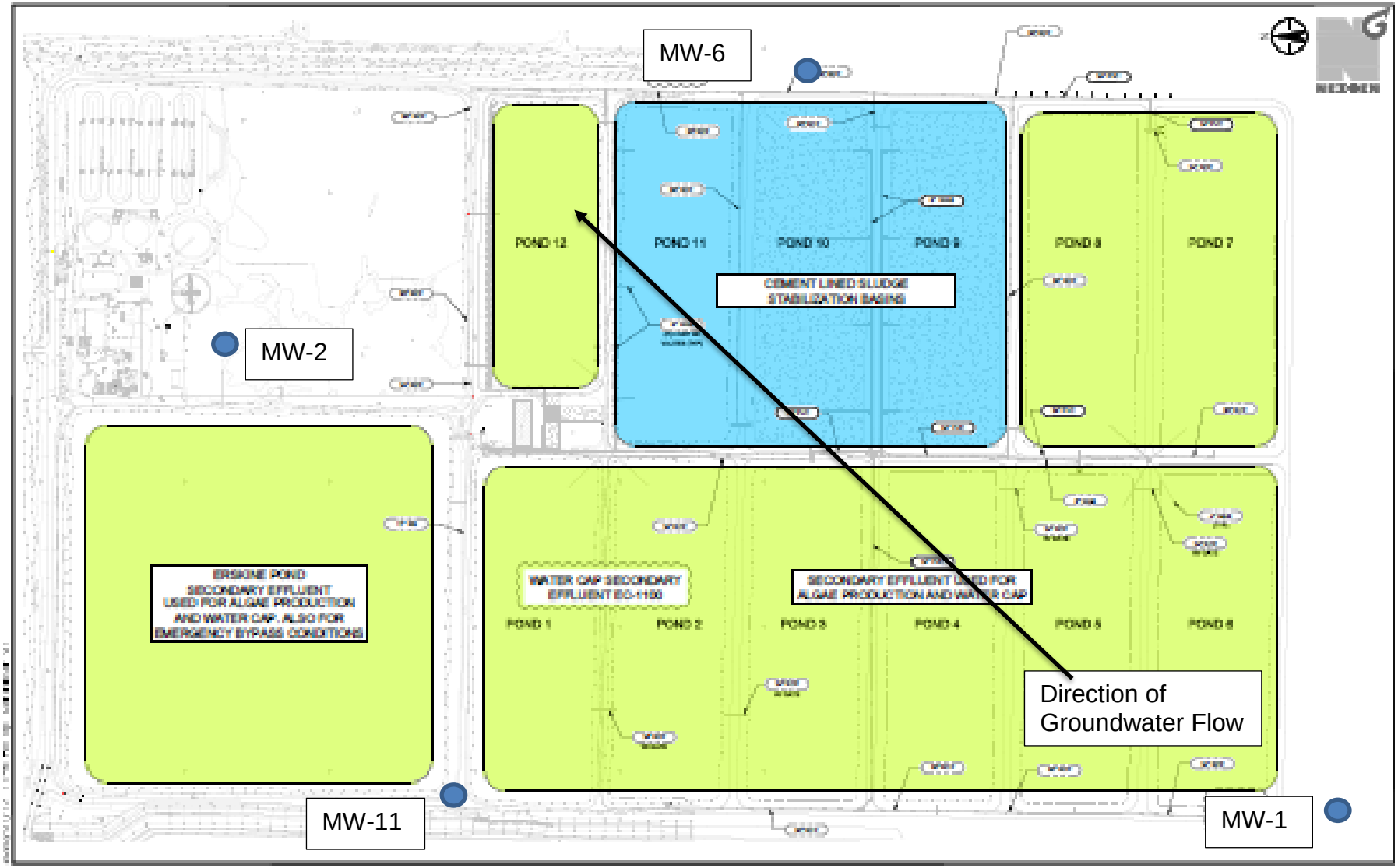


FIGURE B-3 – WOODLAND WATER POLLUTION CONTROL FACILITY

ATTACHMENT C – FLOW SCHEMATICS

FIGURE C-1 WOODLAND WATER POLLUTION CONTROL FACILITY FLOW SCHEMATIC

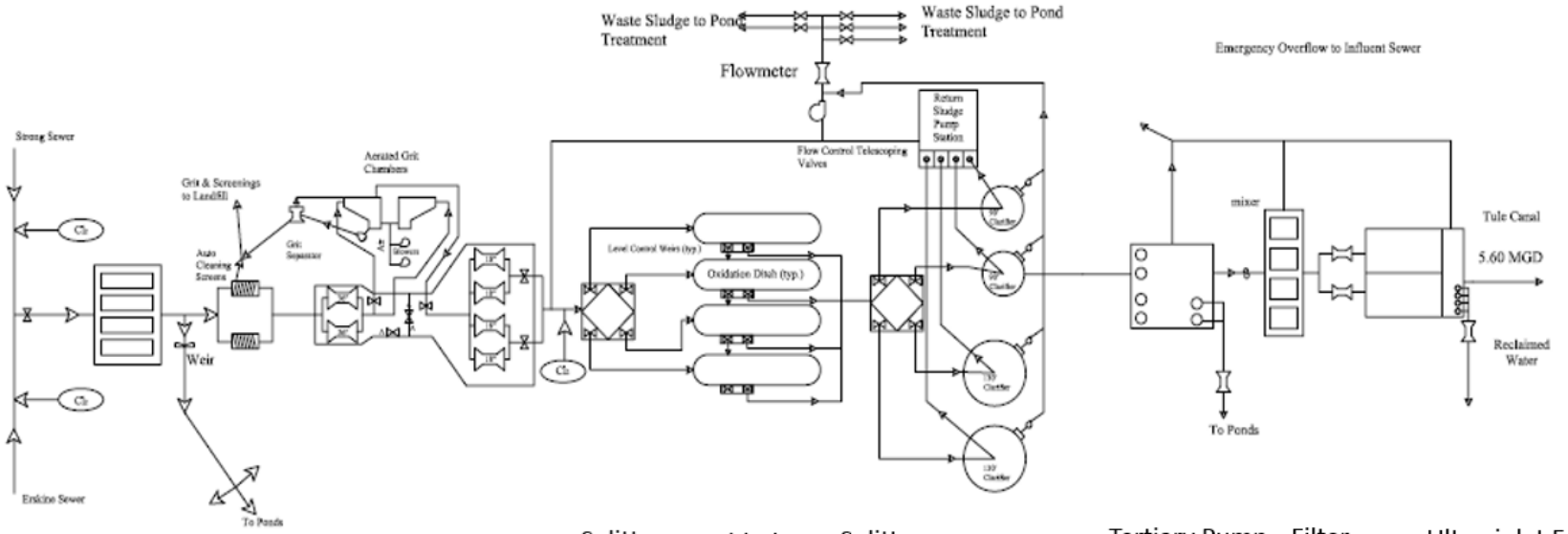
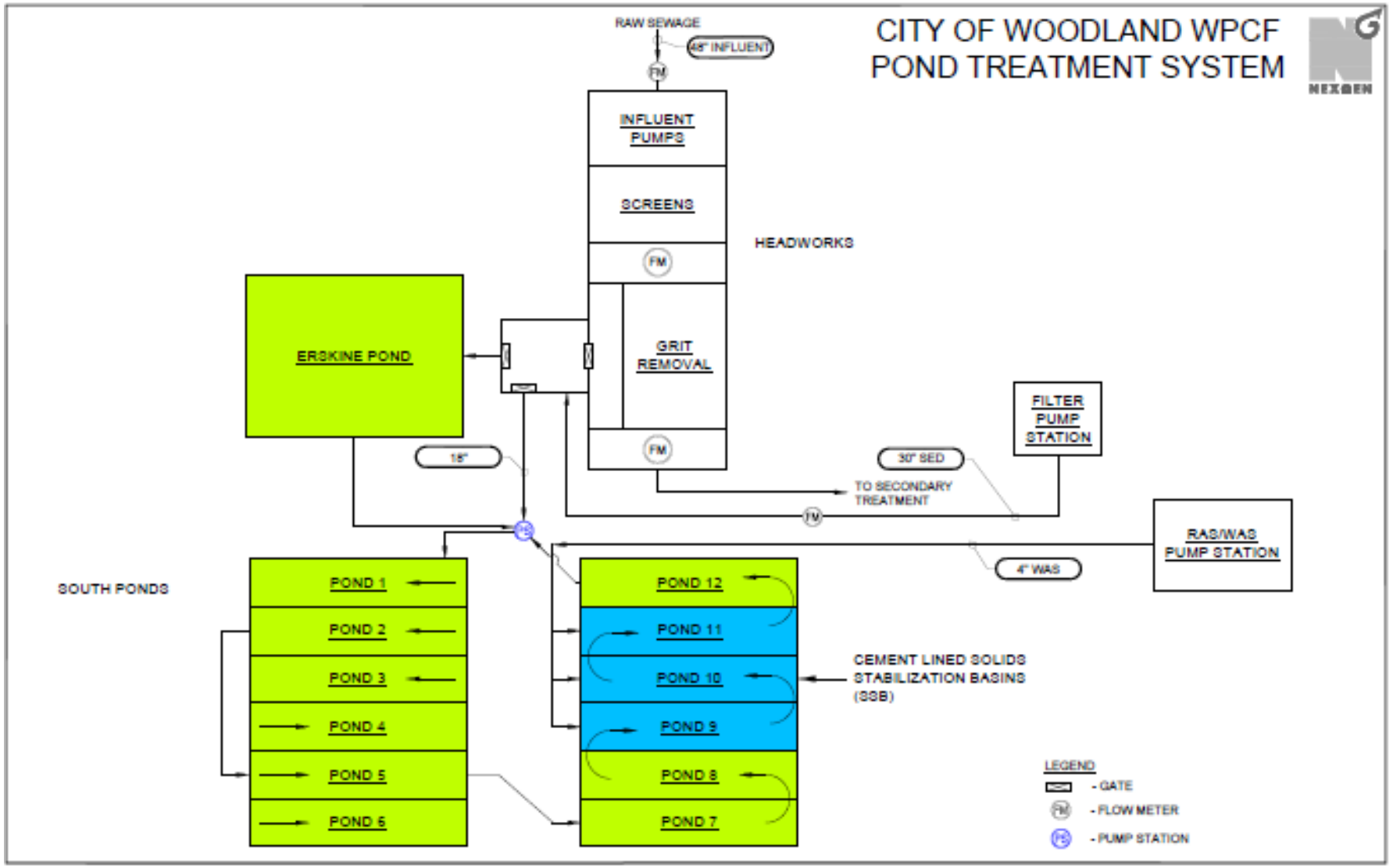


FIGURE C-2 – POND SYSTEM FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply:

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. section 122.41(a); Wat. Code, sections 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. section 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. section 122.41(g).)

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

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(1); Wat. Code, sections 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(2); Wat. Code, sections 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C section 1318(a)(4)(B)(ii); 40 C.F.R. section 122.41(i)(3); Wat. Code, section 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C section 1318(a)(4)(B); 40 C.F.R. section 122.41(i)(4); Wat. Code, sections 13267, 13383.)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. section 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. section 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. section 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. section 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. section 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance
(40 C.F.R. section 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. section 122.41(m)(4)(i)(C).)

4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. section 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice if possible, at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127.
(40 C.F.R. section 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127.
(40 C.F.R. section 122.41(m)(3)(ii).)

H. Upset

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

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

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

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

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. section 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. section 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. section 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. section 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. section 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. section 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and

incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. section 122.41(l)(3); 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. section 122.41(j)(1).)

B. Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. Part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when the method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. chapter 1, subchapter N or O for the measured pollutant or pollutant parameter, or when:

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:

    a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;

    b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge;

    In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. Part 136 or otherwise required under 40 C.F.R. chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. sections 122.21(e)(3), 122.41(j)(4); 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. section 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. section 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. section 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. section 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. section 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. section 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. section 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 C.F.R. section 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. section 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. section 122.41(h); Wat. Code, sections 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. section 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations

of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. section 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. section 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. section 122.22(b)(2)); and

   c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. section 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. section 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. section 122.22(d).)

6. Any person providing the electronic signature for such documents described in Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3

(Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R section 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order.
(40 C.F.R. section 122.41(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of 21 December 2016, all reports and forms must be submitted electronically to the initial recipient, defined in Standard Provisions – Reporting V.J, and comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127.
(40 C.F.R. section 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board.
(40 C.F.R. section 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.
(40 C.F.R. section 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date.
(40 C.F.R. section 122.41(l)(5).)

E. Twenty-Four Hour Reporting

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

   For noncompliance events related to combined sewer overflows, sanitary

sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.

As of 21 December 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. They may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. section 122.41(l)(6)(i).)

F. Planned Changes

The Discharger shall give notice to the Central Valley Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. section 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. section 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. section 122.41(l)(1)(ii).)

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined

sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. section 122.41(l)(7).)

I. Other Information

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

J. Initial Recipient for Electronic Reporting Data

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

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13350, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

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

All POTW's shall provide adequate notice to the Central Valley Water Board of the following (40 C.F.R. section 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. section 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. section 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. section 122.42(b)(3).).

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

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

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

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory accredited for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW), in accordance with the provision of Water Code section 13176. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. Data generated from field measurements such as pH, dissolved oxygen (DO), electrical conductivity (EC), turbidity, temperature, and residual chlorine, are exempt pursuant to Water Code Section 13176. A manual containing the steps followed in this program for any field measurements such as pH, DO, EC, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.

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

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

F. Laboratory analytical methods shall be sufficiently sensitive in accordance with the Sufficiently Sensitive Methods Rule (SSM Rule) specified under 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). A U.S. EPA-approved analytical method is sufficiently sensitive for a pollutant/parameter where:

1. The method minimum level (ML) is at or below the applicable water quality objective for the receiving water, or;

2. The method ML is above the applicable water quality objective for the receiving water but the amount of the pollutant/parameter in the discharge is high enough that the method detects and quantifies the level of the pollutant/parameter, or;

3. The method ML is above the applicable water quality objective for the receiving water, but the ML is the lowest of the 40 C.F.R. 136 U.S. EPA-approved analytical methods for the pollutant/parameter.

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

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

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

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

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	Location where a representative sample of the influent into the Facility can be collected prior to entering the treatment process.
--	SPL-001	Location where a representative sample of the municipal supply water can be obtained.
--	FIL-001	Monitoring of the filter effluent to be measured immediately downstream of the filters prior to the UV disinfection system
--	UVS-001	Location where a representative sample of wastewater can be collected immediately upstream of the ultraviolet light (UV) disinfection system
--	UVS-002	Location where a representative sample of wastewater can be collected immediately downstream of the ultraviolet light (UV) disinfection system
001	EFF-001	Location where a representative sample of the effluent can be collected after all treatment processes and prior to commingling with other waste streams or being discharged to Tule Canal. Latitude: 38° 40’ 51” N Longitude: 121° 38’ 38” W
002	EFF-002	Location where a representative sample of the secondary treated and untreated wastewater can be collected prior to discharge to ponds.
--	RSW-001	Approximately 800 feet upstream of Discharge Point 001 in Tule Canal.
--	RSW-002	Approximately 1,800 feet downstream of Discharge Point 001 in Tule Canal
--	RSW-003	In Tule Canal between Monitoring Locations RSW-001 and RSW-002.
--	PND-001	Location where a representative sample of wastewater can be collected from South Pond 1 (Algae Production Pond)
--	PND-002	Location where a representative sample of wastewater can be collected from South Pond 2 (Algae Production Pond)
--	PND-003	Location where a representative sample of wastewater can be collected from South Pond 3 (Algae Production Pond)
--	PND-004	Location where a representative sample of wastewater can be collected from South Pond 4 (Algae Production Pond)
--	PND-005	Location where a representative sample of wastewater can be collected from South Pond 5 (Algae Production Pond)
--	PND-006	Location where a representative sample of wastewater can be collected from South Pond 6 (Algae Production Pond)
--	PND-007	Location where a representative sample of wastewater can be collected from South Pond 7 (Algae Production Pond)
--	PND-008	Location where a representative sample of wastewater can be collected from South Pond 8 (Algae Production Pond)

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	PND-012	Location where a representative sample of wastewater can be collected from South Pond 12 (Algae Production Pond)
--	PND-013	Location where a representative sample of wastewater can be collected from Emergency Flow Equalization Pond (Erskine Pond or Pond 13)
--	GW-01	Groundwater monitoring well (identified as MW-1 in groundwater monitoring reports)
--	GW-02	Groundwater monitoring well (identified as MW-2 in groundwater monitoring reports)
--	GW-06	Groundwater monitoring well (identified as MW-6 in groundwater monitoring reports)
--	GW-08	Groundwater monitoring well (identified as MW-8 in groundwater monitoring reports)
--	GW-09	Groundwater monitoring well (identified as MW-9 in groundwater monitoring reports)
--	GW-10	Groundwater monitoring well (identified as MW-10 in groundwater monitoring reports)
--	GW-11	Groundwater monitoring well (identified as MW-11 in groundwater monitoring reports)
--	GW-12	Groundwater monitoring well (identified as MW-12 in groundwater monitoring reports)
--	GW-13	Groundwater monitoring well (identified as MW-13 in groundwater monitoring reports)
--	BIO-001	Location where a representative sample of biosolids can be obtained from Ponds 9, 10, and/or 11 (Facultative Sludge Lagoons/Sludge Drying Beds).

Table E-1 Notes:

Note 1. 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 INF-001 in accordance with Table E-2 and the testing requirements described in section III.A.2 below:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
Biochemical Oxygen Demand (5-day @ 20°Celsius)	mg/L	24-hour Composite	1/Week
Total Suspended Solids	mg/L	24-hour Composite	1/Week

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

   a. Applicable to all parameters. Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

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

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
Biochemical Oxygen Demand (BOD) 5-day @ 20°Celsius	mg/L	24-hour Composite	3/Week
BOD	% removal	Calculate	1/Month
Total Suspended Solids (TSS)	mg/L	24-hour Composite	3/Week
TSS	% removal	Calculate	1/Week
pH	standard units	Grab	3/Week
Priority Pollutants and Other Constituents of Concern	(see Section IX.E)	(see Section IX.E)	(see Section IX.E)
Ammonia Nitrogen, Total (as N)	mg/L	Grab	3/Week
Chlorpyrifos	µg/L	Grab	1/Year
Diazinon	µg/L	Grab	1/Year
Dissolved Organic Carbon	mg/L	Grab	1/Month
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Week
Hardness, Total (as CaCO3)	mg/L	Grab	1/Month
Mercury (methyl)	µg/L	Grab	1/Quarter

Pollutant Parameter	Units	Sample Type	Minimum Sampling Frequency
Mercury, Total Recoverable	µg/L	Grab	1/Quarter
Mercury, Total Recoverable	g/Year	Calculate	1/Year
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter
Selenium, Total Recoverable	µg/L	Grab	1/Quarter
Temperature	°Celsius	Grab	3/Week
Total Dissolved Solids	mg/L	Grab	1/Month
Whole Effluent Toxicity, Acute	% Survival	Grab	1/Quarter
Whole Effluent Toxicity, Chronic	TUc	24-hr Composite	1/Quarter

2. **Table E-3 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-3:

   a. **Applicable to all parameters.** Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

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

   c. **Temperature** and **pH** may be analyzed with a hand-held field meter, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

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

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

   f. **Hardness** samples shall be collected concurrently with **metals** samples.

   g. **Total Mercury and Methylmercury.** Unfiltered methyl mercury and total mercury samples shall be taken using **clean hands/dirty hands procedures**, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2). The analysis of methyl mercury and total mercury shall be by U.S. EPA method 1630 and1631 (Revision E), respectively, with a **reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury**.

   h. **Chlorpyrifos and Diazinon** shall be sampled using U.S. EPA Method 625M, Method 8141, or equivalent GC/MS method with a lower Reporting

Limit than the Basin Plan Water Quality Objectives of 0.015 µg/L and 0.1 µg/L for chlorpyrifos and diazinon, respectively.

i. **Priority Pollutants**. For all priority pollutant constituents listed in Table E-3 (Priority Pollutants and Other Constituents of Concern) the reporting levels 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. Constituents shall be collected and analyzed consistent with the Discharger's Analytical Methods Report (MRP, X.D.1) using sufficiently sensitive analytical methods and Reporting Levels per the SSM Rule specified in 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv).

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

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

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

2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

3. **Test Species** – Test species shall be fathead minnows (*Pimephales promelas*).

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

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

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

1. **Monitoring Frequency** – The Discharger shall perform routine quarterly chronic toxicity testing. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than the triggers and percent effects described in Provisions section VI.C.2.b.i, then the Discharger has the option of conducting two additional compliance monitoring events and perform chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at

least one week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity. See Compliance Determination section VII.L for procedures for calculating 6-week median.

2. **Sample Types** – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.

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

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

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

6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

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

Table E-4. Chronic Toxicity Testing Dilution Series

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

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

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater

Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

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

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

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

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

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

   b. The statistical methods used to calculate endpoints;

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

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

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

   Additionally, the quarterly self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, TES, or TRE monitoring.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

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

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

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

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

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

E. Most Sensitive Species Screening. The Discharger shall perform rescreening to re-evaluate the most sensitive species if there is a significant change in the nature of the discharge. If there are no significant changes during the permit term, a rescreening must be performed prior to permit reissuance and results submitted with the Report of Waste Discharge.

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

2. **Determination of Most Sensitive Species.** If a single test in the species sensitivity screening testing exceeds 1 TUc (as 100/NOEC), then the species used in that test shall be established as the most sensitive species. If there is more than a single test that exceeds 1 TUc (as 100/NOEC), then of the species exceeding 1 TUc (as 100/NOEC) that exhibits the highest percent effect shall be established as the most sensitive species. If none of the tests in the species sensitivity screening exceeds 1 TUc (as 100/NOEC), but at least one of the species exhibits a percent effect greater than 25 percent, then the single species that exhibits the highest percent effect shall be established as the most sensitive species. In all other circumstances, the Executive Officer shall have discretion to determine which single species is the most sensitive considering the test results from the species sensitivity screening.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location EFF-002

1. Effective 31 May 2029, the Discharger shall monitor discharges of wastewater at EFF-002 in accordance with Table E-5 and the testing requirements described in section VI.A.2 below:

Table E-5. Effluent Discharge to Ponds Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous while discharging to ponds

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	Standard units	Grab	Upon startup and 1/Week while discharging to ponds
Biochemical Oxygen Demand (5-day @ 20°Celsius)	mg/L	24-hr Composite [2]	Upon startup and 1/Week while discharging to ponds
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	Upon startup and 1/Week while discharging to ponds
Nitrate Nitrogen (as N)	mg/L	Grab	Upon startup and 1/Week while discharging to ponds

2. **Table E-5 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-5:

   a. Applicable to all parameters. Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

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

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE.

See State Board Order WQ 2016-0068-DDW.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Delta Regional Monitoring Program (RMP)

1. The Discharger is required to participate in the Delta Regional Monitoring Program.

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

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

B. Surface Water Monitoring Location RSW-001

1. The Discharger shall monitor Tule Canal at monitoring Location RSW-001 in accordance with Table E-6 and the testing requirements described in section B.2 below:

Table E-6. Receiving Water Monitoring Requirements for RSW-001

Parameter	Units	Sample Type	Minimum Sampling Frequency
Dissolved Organic Carbon	mg/L	Grab	1/Quarter
Temperature	ºCelsius	Grab	1/Week
Priority Pollutants and Other Constituents of Concern	See Section IX.D	See Section IX.D	See Section IX.D

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

   a. Due to flooded conditions in the Yolo Bypass during wet weather periods, it can be unsafe to obtain samples at Monitoring Location RSW-001. When the Discharger is unable to sample Monitoring Location RSW-001, it shall be so noted on the monthly self-monitoring report.

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

   c. Temperature, hardness, electrical conductivity, dissolved oxygen and pH are not reported weekly or monthly due to Delta RMP participation but must be included with Priority Pollutant Analyses.

C. Surface Water Monitoring Location RSW-002

1. The Discharger shall monitor Tule Canal at monitoring Location RSW-002 in accordance with Table E-7 and the testing requirements described in section C.2 below:

Table E-7. Receiving Water Monitoring Requirements for RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Dissolved Organic Carbon	mg/L	Grab	1/Quarter
Temperature	ºCelsius	Grab	1/Week

2. **Table E-7 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-7:

   a. Due to flooded conditions in the Yolo Bypass during wet weather periods, it can be unsafe to obtain samples at Monitoring Location RSW-002. When the Discharger is unable to sample Monitoring Location RSW-002, it shall be so noted on the monthly self-monitoring report.

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

   c. Temperature, hardness, electrical conductivity, dissolved oxygen and pH are not reported weekly or monthly due to Delta RMP participation.

D. Surface Water Monitoring Location RSW-003

1. The Discharger shall monitor Tule Canal at monitoring Location RSW-003 in accordance with Table E-8 below:

Table E-8. Receiving Water Monitoring Requirements for RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	cfs	Measure	1/Week
Flow	MGD	Calculate	1/Week

2. **Table E-8 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameter described in Table E-8:

   a. Due to flooded conditions in the Yolo Bypass during wet weather periods, it can be unsafe to obtain samples at Monitoring Location RSW-003. When the Discharger is unable to sample Monitoring Location RSW-003, it shall be so noted on the monthly self-monitoring report.

E. Surface Water Monitoring Locations RSW-001, RSW-002, and RSW-003

1. In conducting the receiving water sampling, a weekly log shall be kept of the receiving water conditions at RSW-003, when discharging to Tule Canal. Attention shall be given to the presence of:

   a. Floating or suspended matter;

   b. Discoloration;

   c. Bottom deposits;

   d. Aquatic life;

   e. Visible films, sheens, or coatings;

   f. Fungi, slimes, or objectionable growths; and

g. Potential nuisance conditions.

Due to flooded conditions in the Yolo Bypass during wet weather periods, it can be unsafe to obtain samples at Monitoring Locations RSW-001, RSW-002, and RSW-003. When the Discharger is unable to make observations at Monitoring Locations RSW-001, RSW-002, and/or RSW-003, it shall be so noted on the monthly self-monitoring report. Notes on receiving water conditions shall be summarized in the monthly monitoring report.

F. Groundwater Monitoring Locations GW-01, GW-02, GW-06, and GW-08 through GW-13

1. The current active groundwater monitoring locations are GW-01, GW-02, GW-06, GW-08, GW-09, GW-10, GW-11, GW-12 and GW-13.

2. **Prior to construction and/or beginning a sampling program** of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of the monitoring wells shown in Table E-9, above) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

3. **Prior to sampling**, the groundwater elevations shall be calculated 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. Any new groundwater monitoring wells shall be monitored and sampled on a quarterly schedule.

4. **Groundwater elevation** shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow. Quarterly data and calculations shall be submitted quarterly with the eSMRs and annually with the Groundwater Monitoring and EC Trend Analysis Report. Annual data and calculations shall be submitted with the annual eSMR and with the Groundwater Monitoring and EC Trend Analysis Report.

5. **Applicable to all parameters.** Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

G. Measurement of Depth to Groundwater and Calculations

1. The Discharger shall measure depth to groundwater at GW-01, GW-02, GW-06, GW-08, GW-09, GW-10, GW-11, GW-12 and GW-13 and any new

groundwater monitoring wells and make appropriate calculations in accordance with Table E-9 below and section V.F above:

Table E-9. Measurement of Depth to Groundwater and Calculations at GW-01, GW-02, GW-06, GW-08, GW-09, GW-10, GW-11, GW-12 and GW-13

Parameter	Units	Sample Type	Minimum Sampling Frequency
Depth to Groundwater	±0.01 feet	Measurement	1/Quarter
Groundwater Elevation	±0.01 feet	Calculated	1/Quarter
Gradient	feet/feet	Calculated	1/Quarter
Gradient Direction	degrees	Calculated	1/Quarter

H. Groundwater Sampling and Monitoring Requirements

1. The Discharger shall conduct groundwater monitoring at GW-01, GW-02, GW-06, and GW-11, and any new groundwater monitoring wells in accordance with Table E-10 and the testing requirements described in section V.F above:

Table E-10. Groundwater Monitoring Requirements at GW-01, GW-02, GW-06 and GW-11

Parameter	Units	Sample Type	Minimum Sampling Frequency
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter
Total Coliform Organisms	MPN/100mL	Grab	1/Quarter
Total Dissolved Solids	mg/L	Grab	1/Quarter
Total Kjeldahl Nitrogen	mg/L	Grab	1/Quarter
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter

2. The Discharger shall conduct groundwater monitoring at GW-09, GW-10, GW-12 and GW-13, in accordance with Table E-11 and the testing requirements described in section V.F above:

Table E-11. Groundwater Monitoring Requirements at GW-08 GW-09, GW-10, GW-12, and GW-13

Parameter	Units	Sample Type	Minimum Sampling Frequency
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Year
Total Coliform Organisms	MPN/100mL	Grab	1/Year
Total Dissolved Solids	mg/L	Grab	1/Year
Total Kjeldahl Nitrogen	mg/L	Grab	1/Year
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Year

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. **Monitoring Location BIO-001**

a. In conformance with the Discharger's Pretreatment Program, when in use for biosolids treatment and/or storage, a composite sample of sludge shall be collected annually at Monitoring Location BIO-001 (a combination of

samples from any and all Ponds 9, 10 and 11, whichever are in use) in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for priority pollutants (excluding asbestos).

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

B. Municipal Water Supply

1. **Monitoring Location SPL-001**. The Discharger shall monitor the municipal water supply at SPL-001 in accordance with Table E-12 and the testing requirements described in section IX.B.2. below.

Table E-12 Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Year

2. **Table E-12 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-12:

a. **Applicable to all parameters**. Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

b. If the water supply is from more than one source, the electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.

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

1. **Monitoring Locations UVS-001, UVS-002 and FIL-001.** The Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Locations UVS-001 and UVS-002 in accordance with Table E-13 and the testing requirements described in section IX.C.2 below:

Table E-13. Filtration System and UV Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	(MGD)	Meter	UVS-001	Continuous

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

2. **Table E-13 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-13:

   a. **Applicable to all parameters**. Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

   b. **Continuous analyzers**. The Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results.

   c. **Number of UV Banks in Operation, UV Transmittance, and UV Dose.** The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

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

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

   f. **Total Coliform Organisms.** Sampling frequency shall be once per day which may be reduced to three (3) times per week when the effluent is not being used for recycled water.

D. Algae Production Ponds and Emergency Flow Equalization Pond Monitoring Requirements

1. **Monitoring Locations PND-001 through PND-008, PND-012, and PND-013**

a. The Discharger shall monitor all nine algae production ponds at PND-001 through PND-008, and PND-012, and the Emergency Flow Equalization Pond at PND-013 when any water (e.g. wastewater, groundwater, rainwater, etc.) is present in the ponds in accordance with Table E-14a as follows:

Table E-14a. Pond Conditions

Parameter	Units	Sample Type	Minimum Sampling Frequency
Freeboard	Feet, inches	Measurement	1/Month
Levee Condition	--	Observation	1/Month
Odor	--	Observation	1/Month

b. The Discharger shall monitor algae production ponds PND-002, PND-005, PND-007, PND-008, and the Emergency Flow Equalization Pond at PND-013 when any water (e.g. wastewater, groundwater, rainwater, etc.) is present in the ponds at depths adequate for sample collection, in accordance with Table E-14b and the testing requirements described in section IX.D.2 below as follows:

Table E-14b. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Electrical Conductivity @ 25°Celsius	µmhos/cm	Grab	1/Month
pH	Standard Units	Grab	1/Month
Dissolved Oxygen	mg/L	Grab	1/Month
Temperature	ºCelsius	Grab	1/Month
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter

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

a. **Applicable to all parameters**. Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.

E. Effluent and Receiving Water Characterization

1. The Discharger shall conduct effluent and receiving water characterization monitoring in accordance with Table E-15 and the testing requirements described in section IX.E.2 below.

a. **Monitoring (2021 and 2022).** Quarterly samples shall be collected and analyzed for the constituents listed in Table E-15, below for one year

beginning 3rd quarter 2021 and completing in the 2nd quarter 2022 from the tertiary effluent (Monitoring Location EFF-001). Samples shall be collected from upstream receiving water (Monitoring Location RSW-001) during the 3rd quarter 2021 and 2nd quarter 2022 and analyzed for the constituents listed in Table E-15, below.

Constituents shall be collected and analyzed consistent with the Discharger's Analytical Methods Report (MRP, X.D.1) using sufficiently sensitive analytical methods and Reporting Levels per the SSM Rule specified in 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). The "Reporting Level" is synonymous with the "Method Minimum Level" described in the SSM Rule. Quarterly monitoring shall be conducted for one year beginning with the third quarter of 2021 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.

b. **Analytical Methods Report Certification**. Prior to beginning the Effluent and Receiving Water Characterization monitoring, the Discharger shall provide a certification acknowledging the scheduled start date of the Effluent and Receiving Water Characterization monitoring and confirming that samples will be collected and analyzed as described in the previously submitted Analytical Methods Report. If there are changes to the previously submitted Analytical Methods Report, the Discharger shall outline those changes. A one-page certification form will be provided by Central Valley Water Board staff with the permit's Notice of Adoption that the Discharger can use to satisfy this requirement. The certification form shall be submitted electronically via CIWQS submittal by the due date in the Technical Reports Table.

Table E-15. Effluent and Receiving Water Characterization Monitoring

CTR #	PARAMETER	CAS #	UNITS	SAMPLE TYPE	PARAMETER TYPE
25	2-Chloroethyl vinyl Ether	110-75-8	µg/L	Grab	Volatile Organic
17	Acrolein	107-02-8	µg/L	Grab	Volatile Organic
18	Acrylonitrile	107-13-1	µg/L	Grab	Volatile Organic
19	Benzene	71-43-2	µg/L	Grab	Volatile Organic
20	Bromoform	75-25-2	µg/L	Grab	Volatile Organic
21	Carbon Tetrachloride	56-23-5	µg/L	Grab	Volatile Organic
22	Chlorobenzene	108-90-7	µg/L	Grab	Volatile Organic
24	Chloroethane	75-00-3	µg/L	Grab	Volatile Organic
26	Chloroform	67-66-3	µg/L	Grab	Volatile Organic
35	Methyl Chloride	74-87-3	µg/L	Grab	Volatile Organic
23	Dibromochloromethane	124-48-1	µg/L	Grab	Volatile Organic
27	Dichlorobromomethane	75-27-4	µg/L	Grab	Volatile Organic
36	Methylene Chloride	75-09-2	µg/L	Grab	Volatile Organic
33	Ethylbenzene	100-41-4	µg/L	Grab	Volatile Organic

CTR #	PARAMETER	CAS #	UNITS	SAMPLE TYPE	PARAMETER TYPE
89	Hexachlorobutadiene	87-68-3	µg/L	Grab	Volatile Organic
34	Methyl Bromide (Bromomethane)	74-83-9	µg/L	Grab	Volatile Organic
94	Naphthalene	91-20-3	µg/L	Grab	Volatile Organic
38	Tetrachloroethylene (PCE)	127-18-4	µg/L	Grab	Volatile Organic
39	Toluene	108-88-3	µg/L	Grab	Volatile Organic
40	trans-1,2-Dichloroethylene	156-60-5	µg/L	Grab	Volatile Organic
43	Trichloroethylene (TCE)	79-01-6	µg/L	Grab	Volatile Organic
44	Vinyl Chloride	75-01-4	µg/L	Grab	Volatile Organic
21	Methyl-tert-butyl ether (MTBE)	1634-04-4	µg/L	Grab	Volatile Organic
41	1,1,1-Trichloroethane	71-55-6	µg/L	Grab	Volatile Organic
42	1,1,2-Trichloroethane	79-00-5	µg/L	Grab	Volatile Organic
28	1,1-Dichloroethane	75-34-3	µg/L	Grab	Volatile Organic
30	1,1-Dichloroethylene (DCE)	75-35-4	µg/L	Grab	Volatile Organic
31	1,2-Dichloropropane	78-87-5	µg/L	Grab	Volatile Organic
32	1,3-Dichloropropylene	542-75-6	µg/L	Grab	Volatile Organic
37	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	Grab	Volatile Organic
101	1,2,4-Trichlorobenzene	120-82-1	µg/L	Grab	Volatile Organic
29	1,2-Dichloroethane	107-06-2	µg/L	Grab	Volatile Organic
75	1,2-Dichlorobenzene	95-50-1	µg/L	Grab	Volatile Organic
76	1,3-Dichlorobenzene	541-73-1	µg/L	Grab	Volatile Organic
77	1,4-Dichlorobenzene	106-46-7	µg/L	Grab	Volatile Organic
60	Benzo(a)Anthracene	56-55-3	µg/L	Grab	Semi-Volatile Organic
85	1,2-Diphenylhydrazine	122-66-7	µg/L	Grab	Semi-Volatile Organic
45	2-Chlorophenol	95-57-8	µg/L	Grab	Semi-Volatile Organic
46	2,4-Dichlorophenol	120-83-2	µg/L	Grab	Semi-Volatile Organic
47	2,4-Dimethylphenol	105-67-9	µg/L	Grab	Semi-Volatile Organic
49	2,4-Dinitrophenol	51-28-5	µg/L	Grab	Semi-Volatile Organic
82	2,4-Dinitrotoluene	121-14-2	µg/L	Grab	Semi-Volatile Organic
55	2,4,6-Trichlorophenol	88-06-2	µg/L	Grab	Semi-Volatile Organic
83	2,6-Dinitrotoluene	606-20-2	µg/L	Grab	Semi-Volatile Organic
50	2-Nitrophenol	88-75-5	µg/L	Grab	Semi-Volatile Organic
71	2-Chloronaphthalene	91-58-7	µg/L	Grab	Semi-Volatile Organic
78	3,3-Dichlorobenzidine	91-94-1	µg/L	Grab	Semi-Volatile Organic
62	Benzo(b)Fluoranthene	205-99-2	µg/L	Grab	Semi-Volatile Organic
52	4-Chloro-3-methylphenol	59-50-7	µg/L	Grab	Semi-Volatile Organic
48	2-Methyl-4,6-Dinitrophenol	534-52-1	µg/L	Grab	Semi-Volatile Organic
51	4-Nitrophenol	100-02-7	µg/L	Grab	Semi-Volatile Organic
69	4-Bromophenyl Phenyl Ether	101-55-3	µg/L	Grab	Semi-Volatile Organic
72	4-Chlorophenyl Phenyl Ether	7005-72-3	µg/L	Grab	Semi-Volatile Organic
56	Acenaphthene	83-32-9	µg/L	Grab	Semi-Volatile Organic

CTR #	PARAMETER	CAS #	UNITS	SAMPLE TYPE	PARAMETER TYPE
57	Acenaphthylene	208-96-8	µg/L	Grab	Semi-Volatile Organic
58	Anthracene	120-12-7	µg/L	Grab	Semi-Volatile Organic
59	Benzidine	92-87-5	µg/L	Grab	Semi-Volatile Organic
61	Benzo(a)Pyrene	50-32-8	µg/L	Grab	Semi-Volatile Organic
63	Benzo(ghi)Perylene	191-24-2	µg/L	Grab	Semi-Volatile Organic
64	Benzo(k)Fluoranthene	207-08-9	µg/L	Grab	Semi-Volatile Organic
65	Bis (2-Chloroethoxy) Methane	111-91-1	µg/L	Grab	Semi-Volatile Organic
66	Bis (2-Chloroethyl) Ether	111-44-4	µg/L	Grab	Semi-Volatile Organic
67	Bis (2-Chloroisopropyl) Ether	108-60-1	µg/L	Grab	Semi-Volatile Organic
68	Bis(2-Ethylhexyl) Phthalate	117-81-7	µg/L	Grab	Semi-Volatile Organic
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab	Semi-Volatile Organic
73	Chrysene	218-01-9	µg/L	Grab	Semi-Volatile Organic
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab	Semi-Volatile Organic
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab	Semi-Volatile Organic
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab	Semi-Volatile Organic
79	Diethyl Phthalate	84-66-2	µg/L	Grab	Semi-Volatile Organic
80	Dimethyl Phthalate	131-11-3	µg/L	Grab	Semi-Volatile Organic
86	Fluoranthene	206-44-0	µg/L	Grab	Semi-Volatile Organic
87	Fluorene	86-73-7	µg/L	Grab	Semi-Volatile Organic
88	Hexachlorobenzene	118-74-1	µg/L	Grab	Semi-Volatile Organic
90	Hexachlorocyclopentadiene	77-47-4	µg/L	Grab	Semi-Volatile Organic
91	Hexachloroethane	67-72-1	µg/L	Grab	Semi-Volatile Organic
92	Indeno(1,2,3-cd) Pyrene	193-39-5	µg/L	Grab	Semi-Volatile Organic
93	Isophorone	78-59-1	µg/L	Grab	Semi-Volatile Organic
98	N-Nitrosodiphenylamine	86-30-6	µg/L	Grab	Semi-Volatile Organic
96	N-Nitrosodimethylamine	62-75-9	µg/L	Grab	Semi-Volatile Organic
97	N-Nitrosodi-n-Propylamine	621-64-7	µg/L	Grab	Semi-Volatile Organic
95	Nitrobenzene	98-95-3	µg/L	Grab	Semi-Volatile Organic
53	Pentachlorophenol (PCP)	87-86-5	µg/L	Grab	Semi-Volatile Organic
99	Phenanthrene	85-01-8	µg/L	Grab	Semi-Volatile Organic
54	Phenol	108-95-2	µg/L	Grab	Semi-Volatile Organic
100	Pyrene	129-00-0	µg/L	Grab	Semi-Volatile Organic
--	Aluminum	7429-90-5	µg/L	24-hr Composite	Inorganic
1	Antimony, Total Recoverable	7440-36-0	µg/L	24-hr Composite	Inorganic
2	Arsenic, Total Recoverable	7440-38-2	µg/L	24-hr Composite	Inorganic
15	Asbestos	1332-21-4	µg/L	24-hr Composite	Inorganic
3	Beryllium, Total Recoverable	7440-41-7	µg/L	24-hr Composite	Inorganic
4	Cadmium, Total Recoverable	7440-43-9	µg/L	24-hr Composite	Inorganic
5a (III)	Chromium, Total	7440-47-3	µg/L	24-hr Composite	Inorganic

CTR #	PARAMETER	CAS #	UNITS	SAMPLE TYPE	PARAMETER TYPE
6	Copper, Total Recoverable	7440-50-8	µg/L	24-hr Composite	Inorganic
--	Iron, Total Recoverable	7439-89-6	µg/L	24-hr Composite	Inorganic
7	Lead, Total Recoverable	7439-92-1	µg/L	24-hr Composite	Inorganic
8	Mercury, Total Recoverable	7439-97-6	µg/L	Grab	Inorganic
--	Mercury, Methyl	22967-92-6	µg/L	Grab	Inorganic
--	Manganese, Total Recoverable	7439-96-5	µg/L	24-hr Composite	Inorganic
9	Nickel, Total Recoverable	7440-02-0	µg/L	24-hr Composite	Inorganic
10	Selenium, Total Recoverable	7782-49-2	µg/L	24-hr Composite	Inorganic
11	Silver, Total Recoverable	7440-22-4	µg/L	24-hr Composite	Inorganic
12	Thallium, Total Recoverable	7440-28-0	µg/L	24-hr Composite	Inorganic
13	Zinc, Total Recoverable	7440-66-6	µg/L	24-hr Composite	Inorganic
--	Boron	7440-42-8	µg/L	24-hr Composite	Non-Metal/Mineral
--	Chloride	16887-00-6	mg/L	24-hr Composite	Non-Metal/Mineral
14	Cyanide, Total (as CN)	57-12-5	µg/L	24-hr Composite	Non-Metal/Mineral
--	Phosphorus, Total (as P)	7723-14-0	mg/L	24-hr Composite	Non-Metal/Mineral
--	Sulfate	14808-79-8	mg/L	24-hr Composite	Non-Metal/Mineral
--	Sulfide (as S)	5651-88-7	mg/L	24-hr Composite	Non-Metal/Mineral
110	4,4-DDD	72-54-8	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
109	4,4-DDE	72-55-9	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
108	4,4-DDT	50-29-3	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
112	alpha-Endosulfan	959-98-8	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
103	alpha-BHC (Benzene hexachloride)	319-84-6	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
102	Aldrin	309-00-2	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
113	beta-Endosulfan	33213-65-9	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
104	beta-BHC (Benzene hexachloride)	319-85-7	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
107	Chlordane	57-74-9	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
106	delta-BHC (Benzene hexachloride)	319-86-8	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
111	Dieldrin	60-57-1	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
114	Endosulfan Sulfate	1031-07-8	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
115	Endrin	72-20-8	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
116	Endrin Aldehyde	7421-93-4	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
117	Heptachlor	76-44-8	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
118	Heptachlor Epoxide	1024-57-3	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
105	gamma-BHC (Benzene hexachloride or Lindane)	58-89-9	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
119	Polychlorinated Biphenyl (PCB) 1016	12674-11-2	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
120	PCB 1221	11104-28-2	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
121	PCB 1232	11141-16-5	µg/L	24-hr Composite	Pesticide/PCB/Dioxin

CTR #	PARAMETER	CAS #	UNITS	SAMPLE TYPE	PARAMETER TYPE
122	PCB 1242	53469-21-9	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
123	PCB 1248	12672-29-6	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
124	PCB 1254	11097-69-1	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
125	PCB 1260	11096-82-5	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
126	Toxaphene	8001-35-2	µg/L	24-hr Composite	Pesticide/PCB/Dioxin
16	2,3,7,8-TCDD (Dioxin)	1746-01-6	mg/L	24-hr Composite	Pesticide/PCB/Dioxin
--	pH	--	SU	Grab	Conventional
--	Temperature	--	ºC	Grab	Conventional
--	Foaming Agents (MBAS)	MBAS	mg/L	24-hr Composite	Non-Conventional
--	Hardness (as CaCO3)	471-34-1	mg/L	Grab	Non-Conventional
--	Specific Conductance (Electrical Conductivity or EC)	EC	µmhos /cm	24-hr Composite	Non-Conventional
--	Total Dissolved Solids (TDS)	TDS	mg/L	24-hr Composite	Non-Conventional
--	Dissolved Organic Carbon (DOC)	DOC	mg/L	24-hr Composite	Non-Conventional
7	Ammonia (as N)	7664-41-7	mg/L	24-hr Composite	Nutrient
8	Nitrate (as N)	14797-55-8	mg/L	24-hr Composite	Nutrient
9	Nitrite (as N)	14797-65-0	mg/L	24-hr Composite	Nutrient
--	1,2,3-Trichloropropane (TCP)	96-18-4	ug/L	Grab	Other Constituents of Concern
--	Trichlorofluoromethane	75-69-4	µg/L	Grab	Other Constituents of Concern
--	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	µg/L	Grab	Other Constituents of Concern
--	Styrene	100-42-5	µg/L	Grab	Other Constituents of Concern
--	Xylenes	1330-20-7	µg/L	Grab	Other Constituents of Concern
--	Barium	7440-39-3	µg/L	24-hr Composite	Other Constituents of Concern
--	Fluoride	16984-48-8	mg/L	24-hr Composite	Other Constituents of Concern
--	Molybdenum	7439-98-7	µg/L	24-hr Composite	Other Constituents of Concern
--	Tributyltin	688-73-3	µg/L	24-hr Composite	Other Constituents of Concern
--	Alachlor	15972-60-8	µg/L	24-hr Composite	Other Constituents of Concern
--	Atrazine	1912-24-9	µg/L	24-hr Composite	Other Constituents of Concern
--	Bentazon	25057-89-0	µg/L	24-hr Composite	Other Constituents of Concern

CTR #	PARAMETER	CAS #	UNITS	SAMPLE TYPE	PARAMETER TYPE
--	Carbofuran	1563-66-2	µg/L	24-hr Composite	Other Constituents of Concern
--	2,4-D	94-75-7	µg/L	24-hr Composite	Other Constituents of Concern
--	Dalapon	75-99-0	µg/L	24-hr Composite	Other Constituents of Concern
--	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	µg/L	24-hr Composite	Other Constituents of Concern
--	Di(2-ethylhexyl)adipate	103-23-1	µg/L	24-hr Composite	Other Constituents of Concern
--	Dinoseb	88-85-7	µg/L	24-hr Composite	Other Constituents of Concern
--	Diquat	85-00-7	µg/L	24-hr Composite	Other Constituents of Concern
--	Endothal	145-73-3	µg/L	24-hr Composite	Other Constituents of Concern
--	Ethylene Dibromide (EDB)	106-93-4	µg/L	24-hr Composite	Other Constituents of Concern
--	Methoxychlor	72-43-5	µg/L	24-hr Composite	Other Constituents of Concern
--	Molinate (Ordram)	2212-67-1	µg/L	24-hr Composite	Other Constituents of Concern
--	Oxamyl	23135-22-0	µg/L	24-hr Composite	Other Constituents of Concern
--	Picloram	1918-02-1	µg/L	24-hr Composite	Other Constituents of Concern
--	Simazine (Princep)	122-34-9	µg/L	24-hr Composite	Other Constituents of Concern
--	Thiobencarb	28249-77-6	µg/L	24-hr Composite	Other Constituents of Concern
--	2,4,5-TP (Silvex)	93-72-1	µg/L	24-hr Composite	Other Constituents of Concern
--	Chlorpyrifos	2921-88-2	µg/L	24-hr Composite	Other Constituents of Concern
--	Diazinon	333-41-5	µg/L	24-hr Composite	Other Constituents of Concern

Table E-15 Notes:

Note 1. CTR # = California Toxics Rule Number
Note 2. CAS # = Chemical Abstracts Service Number
Note 3. SU = Standard Units

2. **Table E-15 Testing Requirements**. The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-15.

a. **Constituents Already Sampled.** 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-15, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.

b. **Sample Type**. All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-15, below.

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

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

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

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

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

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

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit monthly, quarterly, semiannual, and annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMRs are required even if there is no discharge. If no discharge occurs during the month, the monitoring report must be submitted stating that there has been no discharge.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule in Table E-16:

Table E-16. 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
3/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

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

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

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

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

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

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

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

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

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

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

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

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

the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

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

c. The Discharger shall attach all final laboratory reports from all contracted commercial laboratories, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed. This requirement only applies to constituents monitored per section IX.E, Effluent and Receiving Water Characterization, and to nitrate, dissolved organic carbon, selenium, mercury, methylmercury, chlorpyrifos, diazinon, and acute and chronic whole effluent toxicity monitored per section IV.A.1, Monitoring Location EFF-001.

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

a. **Calendar Annual Average Limitations**. For constituents with effluent limitations specified as “calendar annual average” (electrical conductivity) the Discharger shall report the calendar annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

b. **Total Calendar Year Annual Mass Loading Mercury Effluent Limitation.** The Discharger shall calculate monthly 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.B of the Waste Discharge Requirements.

c. **Removal Efficiency (BOD5 and TSS).** The Discharger shall calculate and report the percent removal of BOD5 and TSS in the SMRs. The percent removal shall be calculated as specified in section VII.A. of the Waste Discharge Requirements.

d. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in Section VII.D of the Waste Discharge Requirements.

e. **Chlorpyrifos and Diazinon Effluent Limitations.** The Discharger shall calculate and report the value of SAMEL and SMDEL for the effluent, using the equations in Effluent Limitations IV.A.1.h and consistent with the Compliance Determination Language in Section VII.F of the

Limitations and Discharge Requirements. The Discharger shall also report the river stage height for the Sacramento River at the Fremont Weir (FRE) and whether the Yolo Bypass is flooded or not in the monthly SMRs for the months of December through May.

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

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

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

C. Discharge Monitoring Reports (DMR's)

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

D. Other Reports

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

   a. Report of Waste Discharge (Form 200);

   b. NPDES Form 1;

   c. NPDES Form 2A;

   d. NPDES Form 2S; and

   e. Request and justification for continuance of the 2 TUc toxicity trigger for *Selenastrum capricornutum*.

2. **Analytical Methods Report**. The Discharger shall complete and submit an Analytical Methods Report, electronically via CIWQS submittal, by the due date shown in the Technical Reports Table. The Analytical Methods Report shall

include the following for each constituent to be monitored in accordance with this Order: 1) applicable water quality objective, 2) reporting level (RL), 3) method detection limit (MDL), and 4) analytical method. The analytical methods shall be sufficiently sensitive with RLs consistent with the SSM Rule per 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv), and with the Minimum Levels (MLs) in the SIP, Appendix 4. The "Reporting Level or RL" is synonymous with the "Method Minimum Level" described in the SSM Rule. If an RL is not less than or equal to the applicable water quality objective for a constituent, the Discharger shall explain how the proposed analytical method complies with the SSM Rule. Central Valley Water Board staff will provide a tool with the permit's Notice of Adoption to assist the Discharger in completing this requirement. The tool will include the constituents and associated applicable water quality objectives to be included in the Analytical Methods Report.

3. **Annual Operations Report**. The Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing the following by the due date in the Technical Reports Table:

   a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

   b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

   c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

4. **Annual Pretreatment Reporting Requirements**. The Discharger shall submit annually a report to the Central Valley Water Board, with copies to U.S. EPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

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

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

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

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

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

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

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

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

   ii. consistently achieved compliance;

   iii. inconsistently achieved compliance;

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

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

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

   vii. compliance status unknown.

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

   i. The names and addresses of the SIUs subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

   ii. The conclusions or results from the inspection or sampling of each industrial user.

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

   i. Name of SIU;

   ii. Category, if subject to federal categorical standards;

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

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

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

   vi. For a SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

   vii. A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits.

   viii. Whether the facility is in significant noncompliance (SNC) as defined at 40 C.F.R. section 403.8(f)(2)(viii) at any time during the year; and

   ix. A summary of enforcement or other actions taken during the year to return the SIU to compliance. Describe the type of action (e.g., warning letters or notices of violation, administrative orders, civil actions, and criminal actions), final compliance date, and the amount

of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU into compliance;

x. Restriction of flow to the POTW.

xi. Disconnection from discharge to the POTW.

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

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

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

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

l. Pretreatment Program reports shall be submitted electronically to the Central Valley Water Board via CIWQS submittal and the:

State Water Resources Control Board
NPDES Wastewater@waterboards.ca.gov
and the
U.S. EPA Region 9 Pretreatment Coordinator
R9Pretreatment@epa.gov

5. **Recycled Water Policy Annual Reports.** In accordance with Section 3 of the Water Quality Control Policy for Recycled Water (Recycled Water Policy), the Discharger shall electronically submit an annual report of monthly data to the State Water Board by 30 April annually covering the previous calendar year using the State Water Board's GeoTracker website (https://geotracker.waterboards.ca.gov/).

Information for setting up and using the GeoTracker system can be found in the *ESI Guide for Responsible Parties* document on the State Water Board's website for Electronic Submittal of Information (https://www.waterboards.ca.gov/ust/electronic_submittal/index.html).

The annual report to GeoTracker must include volumetric reporting of the items listed in Section 3.2 of the Recycled Water Policy (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf).

A pdf of the upload confirmation from GeoTracker for the Recycled Water Policy Annual Report shall be uploaded into CIWQS to demonstrate compliance with this reporting requirement

6. **Technical Report Submittals**. This Order includes requirements to submit an ROWD, special study technical reports, progress reports, and other reports identified in the MRP (hereafter referred to collectively as "technical reports"). Table E-17, the Technical Reports Table and subsequent table notes below summarize all technical reports required by this Order and the due dates for submittal. All technical reports shall be submitted electronically via CIWQS submittal. Technical reports should be uploaded as a PDF, Microsoft Word, or Microsoft Excel file attachment.

Table E-17. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Intentionally left blank	**Standard Reporting Requirements**	Intentionally left blank	Intentionally left blank
1	Analytical Methods Report Certification	1 October 2020	MRP IX.E.2.g
2	Report of Waste Discharge (ROWD)	31 May 2024	MRP X.D.1
3	Salinity Evaluation and Minimization Plan Summary Evaluation	31 May 2024 (with ROWD)	WDR VI.C.3.b
4	Analytical Methods Report	30 June 2020	MRP X.D.2
5	Annual Operations Report	1 February 2021	MRP X.D.3
6	Annual Operations Report	1 February 2022	MRP X.D.3
7	Annual Operations Report	1 February 2023	MRP X.D.3
8	Annual Operations Report	1 February 2024	MRP X.D.3
9	Annual Operations Report	1 February 2025	MRP X.D.3
Intentionally left blank	**Compliance Schedule for Final Effluent Limitations for Methylmercury** (WDR Section VI.C.7.b)	Intentionally left blank	Intentionally left blank
Intentionally left blank	**Phase 1**	Intentionally left blank	Intentionally left blank
10	Phase 1 Methylmercury Control Study Work Plan	Complete	WDR VI.C.7.b
11	Pollution Prevention Plan for Mercury (see Table Note 4 below)	Complete	WDR VI.C.7.b
12	Implement Phase 1 Methylmercury Control Study Work Plan	Complete	WDR VI.C.7.b
13	Mercury Pollution Prevention Plan Annual Progress Report (see Table Note 1 below)	1 February 2021	WDR VI.C.3.a
14	Mercury Pollution Prevention Plan Annual Progress Report (see Table Note 1 below)	1 February 2022	WDR VI.C.3.a
15	Mercury Pollution Prevention Plan Annual Progress Report (see Table Note 1 below)	1 February 2023	WDR VI.C.3.a
16	Mercury Pollution Prevention Plan Annual Progress Report (see Table Note 1 below)	1 February 2024	WDR VI.C.3.a
17	Mercury Pollution Prevention Plan Annual Progress Report (see Table Note 1 below)	1 February 2025	WDR VI.C.3.a
18	Final Phase 1 Methylmercury Control Study	Complete	WDR VI.C.7.b

Report #	Technical Report	Due Date	CIWQS Report Name
Intentionally left blank	**Phase 2**	Intentionally left blank	Intentionally left blank
19	Implement Methylmercury Control Programs	TBD (see Table Note 5 below)	WDR VI.C.7.b.i
20	Full Compliance	31 December 2030 (see Table Note 5 below)	WDR VI.C.7.b.ii
Intentionally left blank	**Compliance Schedule for Pond Effluent Limitations and Groundwater Limitations** (WDR Section VI.C.7.a)	Intentionally left blank	Intentionally left blank
21	Groundwater Background Characterization	30 June 2021	WDR VI.C.7.a.i
22	Groundwater Antidegradation Analysis and Best Practical Treatment or Control (BPTC) Evaluation for Groundwater Protection	30 November 2021	WDR VI.C.7.a.ii
23	Assessment of Alternatives, Selection of Preferred Alternative, and Work Plan to implement Selected Alternative for Compliance with Pond Discharge Effluent and Groundwater Limitations.	1 June 2022	WDR VI.C.7.a.iii
24	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2021	WDR VI.C.7.a.iv
25	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2022	WDR VI.C.7.a.iv
26	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2023	WDR VI.C.7.a.iv
27	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2024	WDR VI.C.7.a.iv
28	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2025	WDR VI.C.7.a.iv
29	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2026	WDR VI.C.7.a.iv
30	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2027	WDR VI.C.7.a.iv
31	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2028	WDR VI.C.7.a.iv

Report #	Technical Report	Due Date	CIWQS Report Name
32	Annual Pond Discharge Effluent and Groundwater Limitation Progress Report (see Table Note 2 below)	1 February 2029	WDR VI.C.7.a.iv
33	Completion Report for Construction of Plant Upgrades (if necessary)	31 August 2028	WDR VI.C.7.a.v
34	Notification of Full Compliance with Pond Discharge Effluent and Groundwater Limitations Signed by LRO	31 May 2029	WDR VI.C.7.a.vi
35	Notification of Full Compliance with Methylmercury Effluent Limitations Signed by Legally Responsible Official (LRO)	31 December 2030	WDR VI.C.7.a.vii
Intentionally left blank	**Other Reports**	Intentionally left blank	Intentionally left blank
36	Annual Pretreatment Report	28 February 2021	MRP X.D.4
37	Annual Pretreatment Report	28 February 2022	MRP X.D.4
38	Annual Pretreatment Report	28 February 2023	MRP X.D.4
39	Annual Pretreatment Report	28 February 2024	MRP X.D.4
40	Annual Pretreatment Report	28 February 2025	MRP X.D.4
41	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2021	MRP X.D.5
42	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2022	MRP X.D.5
43	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2023	MRP X.D.5
44	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2024	MRP X.D.5
45	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2025	MRP X.D.5

Table E-17 Notes:

Note 1. Beginning 1 February 2021 and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on the previously submitted pollution prevention plan for mercury. The progress reports shall discuss the effectiveness of the pollution prevention plan in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the pollution prevention plan.

Note 2. Beginning 1 February 2021 and annually, thereafter, until the Facility achieves compliance with the Pond Discharge Effluent and Groundwater Limitations, the Discharger shall submit annual reports on the progress of the Assessment of Alternatives, the Work Plan, and any proposed construction activities.

Note 3. The annual progress reports for mercury and Pond Discharge may be combined with the Annual Operations Report and submitted as one report.

Note 4. The pollution prevention plan for mercury shall be implemented in accordance with section VI.C.3.a.

Note 5. To be determined. Following Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations, final compliance date, etc. Consequently, the start of Phase 2 and the final compliance date is uncertain at the time this Order was adopted.

ATTACHMENT F – FACT SHEET

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Tables

ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

Waste Discharge ID:	5A570105001
CIWQS Facility Place ID:	272960
Discharger:	City of Woodland
Name of Facility:	Water Pollution Control Facility
Facility Address:	42929 County Road 24
Facility City, State Zip:	Woodland, CA 95776
Facility County:	Yolo County
Facility Contact, Title and Phone Number:	Shane Carlsen, Chief Plant Operator (530) 661-2054
Authorized Person to Sign and Submit Reports:	Craig Locke, Director of Public Works (530) 661-5899
Mailing Address:	655 North Pioneer Way Woodland, CA 95776
Billing Address:	Same as Mailing Address
Type of Facility:	Publicly Owned Treatment Works
Major or Minor Facility:	Major
Threat to Water Quality:	1
Complexity:	A
Pretreatment Program:	Yes
Recycling Requirements:	State Board Order WQ 2016-0068-DDW
Facility Permitted Flow:	10.4 million gallons per day (MGD)
Facility Design Flow:	10.4 MGD
Watershed:	Lower Sacramento
Receiving Water:	Tule Canal
Receiving Water Type:	Inland Surface Water (in Yolo Bypass)

A. The City of Woodland (hereinafter Discharger) is the owner and operator of the Water Pollution Control Facility (hereinafter Facility), a Publicly Owned Treatment Works (POTW).

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

B. The Facility discharges wastewater to an unnamed irrigation channel that discharges to Tule Canal a water of the United States, and tributary to the Yolo Bypass within the Sacramento San Joaquin Delta. The Discharger was previously regulated by Order R5-2014-0120-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0077950, adopted on 9 October 2014, amended on 18 February 2016, and expired on 30 November 2019. Attachment B provides maps and photographs of the area around the Facility. Attachment C provides a flow schematic of the Facility.

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

D. The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDR's) and NPDES permit on 30 May 2019. The application was deemed complete on 3 June 2019. A site visit was conducted on 4 September 2019 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

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

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the City of Woodland and serves a population of approximately 59,000. The design daily average flow capacity of the Facility is 10.4 million gallons per day (MGD). In 2018, the average annual effluent flow was 3.5 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

1. **Treatment System** at the Facility consists of the following:

- Four screw pumps
- Two 6mm punched plate screens
- Two aerated grit chambers
- Magnesium hydroxide alkalinity control system
- Four 2 MG oxidation ditches (Modified Ludzak-Ettinger fine bubble diffuser aeration basins) each with an anoxic zone for denitrification
- Two 92-foot secondary clarifiers
- Two 130-foot secondary clarifiers
- Four cloth media filters – 5 nanometer
- Two ultraviolet light disinfection channels
- Pond System:
  - Depth of water in the ponds ranges between 1 to 6 feet.
  - Depth to groundwater is, at times, less than 10 feet.
  - All ponds completed in native clay with a percolation rate as low as 15 inches/year (0.002 inches/hour). (Sandy soil has a percolation rate as high as 1 to 8 inches/hour.)
  - One emergency flow equalization pond (Erskine Pond also known as Pond 13)
  - Twelve former treatment ponds (South Ponds):
    - Ponds 1 through 8 are used as algae production ponds;
    - Ponds 9, 10, and 11 are used for sludge stabilization;
    - Pond 12 is currently not in use.
- Two discharge points:
  - Discharge of tertiary treated wastewater to surface water (Tule Canal) at Discharge Point 001;
  - Discharge of untreated or secondary treated wastewater to ponds at Discharge Point 002.

2. **Pond System Operation**

- Emergency flow equalization pond (Erskine Pond or Pond 13)
  - No engineered liner or soil treatment but completed in native clay
  - Provides peak and emergency overflow protection, onsite discharge containment during plant shutdowns, and is used as an algae production pond to assist with the onsite sludge stabilization process.
  - A portion of the Facility's secondary effluent is directed to the Erskine Pond to maintain the water cap for algae production.
  - Primarily contains secondary effluent in addition to rainwater and groundwater but also may contain untreated influent.
  - The wastewater in the emergency flow equalization pond is **not** returned to the headworks and the pond currently contains water year-round.
  - Wastewater from the emergency flow equalization pond is distributed to the former treatment ponds as described below.
- Algae Production Ponds 1 through 8 and 12 (former treatment ponds also known as the South Ponds):
  - No engineered liner or soil treatment but completed in native clay

- Along with the emergency flow equalization pond, these ponds are also used for peak and emergency overflow protection, and onsite discharge containment during plant shutdowns, but are primarily used as algae production ponds to assist with the onsite sludge stabilization process.
- Primarily contain secondary effluent in addition to rainwater and groundwater but also may contain untreated influent.
- Wastewater may be distributed to these ponds via The Erskine Pond or from other points in the wastewater treatment process.
- Wastewater may be circulated around the nine-pond system from pond to pond to maintain the water cap. Generally, wastewater is directed into the Erskine Pond and then is pumped into Ponds 1, 2, and/or 3. From there the water is directed into Ponds 4, 5, and/ or 6, and then Ponds 7, 8, and then 12 if necessary. After Pond 12 the water is directed back into the pump station to be recirculated back into Ponds 1, 2, and/or 3. Valves and gates are provided so that the City can bypass ponds if needed.
- The wastewater is **not** returned to the headworks. Rather a water cap or shallow layer of wastewater, groundwater, and rainwater is maintained in the ponds for production of aerobic algae. Water in the ponds is lost by evaporation and/or percolation and replaced by wastewater. The oxygenated algae-laden water is distributed to the facultative sludge lagoon to maintain the aerobic layer necessary for sludge stabilization.
- The algae production ponds may contain water year-round, may have low levels of water, and/or may be dry.
- Salt tends to concentrate in Ponds 1 through 8, due to the operation of the ponds. Figure F-3 shows the concentrations of EC in the Erskine Pond, Ponds 1, 2, and 3, and Pond 5. EC tends to be higher in the downstream Pond 5 than in Pond 1 or the Erskine Pond, with Ponds 2 and 3 containing intermediate concentrations of EC. The gap in data for Pond 5 indicates that the pond was dry or did not contain enough water to collect samples. Data for Pond 7 is similar to Pond 5 data and is not shown. Data was not available for Ponds 4, 6, and 12.
- Groundwater in MW-06 has been impacted downgradient of the ponds as discussed further in section VII.D.2 of the Fact Sheet.
- Salt concentrations in groundwater do not show the same magnitude of increase in salt exhibited by the ponds, indicating that much of the salt remains in the ponds due to the native clay soils.

- Sludge Stabilization Ponds 9, 10, and 11 (former treatment ponds also known as the South Sludge Stabilization Ponds):
  - Unlined but completed in native clay and treated with lime/cement mixture to reduce percolation rates even further.
  - Used for sludge stabilization as facultative sludge lagoons or sludge drying beds. The three ponds are used in rotation so that one of the ponds is in use as a facultative sludge lagoon receiving sludge and water while the other two ponds are in various stages of drying and sludge removal.

- A facultative sludge lagoon is operated so that heavy solids will settle to the bottom and lighter solids will float. A population of anaerobic organisms will colonize the accumulated sludge on the bottom of the lagoon. The upper layers of the lagoon provide an atmospheric oxygen transfer rate adequate to prevent anaerobic conditions on the lagoon surface. Intermediate depths of the lagoon support facultative micro-organisms capable of oxidizing both the dissolved and suspended organics from the original wastewater and the products of anaerobic catabolism on the bottom of the lagoon.

3. **Groundwater Monitoring Wells**.

- Depth to groundwater ranges between 3 to 20 feet below ground surface.
- Direction of groundwater flow is northerly, ranging between north northwest to east northeast depending on seasons, irrigation, and groundwater pumping.
- Groundwater monitoring network consists of fifteen monitoring wells; MW-1 through MW-15.
  - MW-3, MW-5, and MW-7 were destroyed.
  - MW-4 is inaccessible due to roots.
  - MW-14 and MW-15 cannot be located.
  - MW-1 is the current upgradient well.
  - MW-2, MW-6, MW-09, and MW-11 are current downgradient wells
  - MW-8, MW-10, MW-12, and MW13 are of limited usefulness for compliance monitoring because they are up-gradient, cross-gradient, and/or far from the Facility.
  - Current well status is shown below in Table F-2.

Table F-2. Monitoring Well Status

Monitoring Location	Monitoring Well	Status
GW-01	MW-1	Upgradient well
GW-02	MW-2	Downgradient well
--	MW-3	Destroyed
--	MW-4	Inaccessible
--	MW-5	Destroyed
GW-06	MW-6	Downgradient well
--	MW-7	Destroyed
GW-08	MW-8	Limited usefulness, significant distance from Facility
GW-09	MW-9	Downgradient well
GW-10	MW-10	Crossgradient or upgradient, depending on season
GW-11	MW-11	Downgradient well
GW-12	MW-12	Upgradent
GW-13	MW-13	Upgradient or crossgradient, depending on season
--	MW-14	Inaccessible

Monitoring Location	Monitoring Well	Status
--	MW-15	Inaccessible

4. **Facility Upgrades.** Upgrades completed during the previous permit term are described below. The Facility was originally built in 1988 and was expanded in 1997, in 1999, and in 2007. A 2007 project upgraded the plant to provide tertiary level treatment (chemical addition, cloth media filtration, and UV disinfection). During the term of the previous permit, Order R5-2014-0120-01, the Discharger converted the secondary treatment process from extended air to Modified Ludzack-Ettinger and upgraded the aeration process equipment from brush rotors to diffused air**.**

   - Transformed secondary treatment process from extended air to Modified Ludzack Ettinger.
   - Upgraded aeration process equipment from brush rotors to diffused air and turbo blowers.
   - Upgraded tertiary treatment cloth media from 10 nanometers to 5 nanometers.
   - Added a magnesium hydroxide alkalinity control system to address the change to surface water.
   - Replaced a 0.25 inch by 6.0 inch moving bar screen with a 6 mm punched plate screen.
   - Upgraded the 1993 SCADA system from a single point control to a Tolkien Ring Control Network.
   - Removed 30 years of accumulated biosolids and cleaned 3 ponds, treated the 11.4-acre pond bottoms with soil cement, and completed the plan to cycle through the ponds for stabilization, and drying.
   - Installed two solar arrays to power 50% of the Facility power demands.
   - Implemented a recycled water supply system.

5. **Biosolids.** Sludge that has settled in the secondary clarifiers is siphoned to the return sludge pump station (RSPS). At the RSPS, the sludge is either recycled within the system as return activated sludge (RAS) or wasted from the system as waste activated sludge (WAS). WAS is pumped to the sludge stabilization ponds. WAS can be directed to the three, of the twelve ponds, that are lined. The sludge stabilization process consists of 1) loading one of the three ponds with sludge for two to three years, 2) allowing that pond to rest (digest) for two years, and 3) allowing the biosolids to dry in place. Dried biosolids are hauled to a landfill for disposal. Transportation and disposal/reuse of the biosolids is regulated by U.S. EPA under 40 C.F.R. part 503. The three sludge stabilization ponds (Ponds 9, 10, and 11) are alternately operated as facultative sludge lagoons or sludge drying beds.

6. **Delta Regional Monitoring Program (RMP).** As of 20 April 2015, the Discharger is participating in the Delta RMP; therefore, receiving water hardness, pH, temperature, and DO monthly self-monitoring data are not available from April 2015 through March 2019. The effluent and receiving

water characterization study contains four sample data points each for receiving water hardness, pH, and temperature. Receiving water DO data is not available. Four samples each of receiving water hardness, pH, temperature, and DO will be available from the 2021 Effluent and Receiving Water Characterization Study

7. **Regional Water Treatment Plant (RWTP)**. The City of Woodland, in partnership with the City of Davis, constructed the RWTP to treat and distribute surface water from the Sacramento River as a replacement for the poor-quality groundwater that was the sole water source for both cities (the Surface Water Supply Project [SWSP]). The RWTP began operation in June of 2016.

8. **Data Set.** Due to completion of facility upgrades in December 2016 and operation of the new RWTP in June 2016, the data set used for the reasonable potential analysis was compiled during the period 1 January 2017 through 30 April 2019.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 2, T9N, R2E, MDB&M, and is shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Tule Canal, a water of the United States within the Yolo Bypass at a point latitude 38° 40’ 51” N and longitude 121° 38’ 38” W.

3. Tule Canal is in eastern Yolo County. The Facility effluent is discharged into an unnamed channel that travels approximately 5 miles north and east before flowing into Tule Canal. Tule Canal is a man-made water body within the Yolo Bypass. The canal generally flows from north to south, though flow reversals can occur due to wind or tidal forces, or due to local agricultural pumping.

4. When flooded, the entire Yolo Bypass is a Delta Waterway. Tule Canal is a part of the Yolo Bypass. Therefore, when the Yolo Bypass is flooded, Tule Canal is a Delta Waterway.

5. Untreated and secondary treated municipal wastewater is commingled with groundwater and rainwater in the algae production ponds and discharged to groundwater.

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

1. Final effluent limitations contained in Order R5-2014-0120-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) are as follows:

Table F-3 Historic Final Effluent Limitations in WDR Order R5-2014-0120-01

Parameter	Units	Average Annual	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (5-day@ 20°C)	mg/L	--	10	15	20
Biochemical Oxygen Demand (5-day@ 20°C)	lbs/day	--	867	1301	1735
Total Suspended Solids	mg/L	--	10	15	20
Total Suspended Solids	lbs/day	--	867	1301	1735
Selenium, Total Recoverable	µg/L	--	4.4	--	7.3
Selenium, Total Recoverable	lbs/day	--	0.39	--	0.64
Ammonia Nitrogen	mg/L	--	1.1	--	2.1
Ammonia Nitrogen	lbs/day	--	95	--	180
Methylmercury (Effective 31 December 2030)	g/year	0.43	--	--	--
Boron	mg/L	1.5	--	--	--
Electrical Conductivity	µmhos/cm	1400	--	--	--
Chlorpyrifos and diazinon (sum)	µg/L	--	1.0	--	1.0

2. Interim effluent limitations contained in Order R5-2014-0120-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) are as follows:

Table F-4. Historic Interim Effluent Limitations in WDR Order R5-2014-0120-01

Parameter	**Units**	**Average Annual**
Mercury, Total (Until 30 December 2030)	g/year	481
Boron, Total (Until 1 January 2021)	mg/L	1.5
Electrical Conductivity (Until 1 January 2021)	µmhos/cm	1400

3. Interim effluent limitations contained in Time Schedule Order (TSO) R5-2011-0907-01 for discharges from Discharge Point 001 (Monitoring Location RSW-002) are as follows:

Table F-5. Historic Interim Effluent Limitations in TSO R5-2011-0907-01

Parameter	**Units**	**Maximum Daily**
Selenium	µg/L	31

4. Monitoring data for Order R5-2014-0120-01 and for discharges from Discharge Point 001 (Monitoring Location RSW-002) are as follows:

Table F-6. Historic Monitoring Data (2017 to 2019)

Parameter	Units	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20ºCelcius	mg/L	2.4	3.7	6.0
Biochemical Oxygen Demand (5-day @ 20ºCelcius	lbs/day	--	--	--
Total Suspended Solids	mg/L	5.25	7.64	14.4
Total Suspended Solids	lbs/day	--	--	--
pH	Standard units	--	--	8.1
Selenium, Total Recoverable	µg/L	1.17	--	2.7
Selenium, Total Recoverable	lbs/day	--	--	--
Ammonia Nitrogen, Total (as N)	µg/L	0.8	--	3.2
Ammonia Nitrogen, Total (as N)	lbs/day	--	--	--
Methylmercury (Effective 31 December 2030)	ng/L	--	--	0.04
Boron	mg/L	--	--	0.660
Electrical Conductivity	µmhos/cm	1092	--	1910
Chlorpyrifos and diazinon (sum)	µg/L	--	--	0.057 DNQ

5. Representative groundwater monitoring data from the term of Order R5-2014-0120-01 (second quarter 2018) are as follows:

Table F-7. Historic Groundwater Monitoring Data

Monitoring Well	Nitrate Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Dissolved Solids (mg/L)	Electrical Conductivity (µmhos/cm)	Total Coliform Organisms (MPN/100mL)
MW-1 Up gradient	2.60	ND	890	1394	<1.1
MW-2 Down gradient	ND	0.2	1500	2455	<1.1
MW-3 Down gradient	--	--	--	--	--
MW-5 Down gradient	--	--	--	--	--
MW-6 Down gradient	ND	0.28	1400	2565	1.1
MW-9 Down gradient	0.08	ND	600	950	<1.1
MW-11 Down gradient	1.70	0.74	2000	3765	<1.1

D. Compliance Summary

1. ACL R5-2015-0535 was issued on 14 September 2015 for violations of effluent limitations for total coliform organisms that occurred between July 2012 and April 2015. This ACL was settled by payment.

2. Between January 2016 and March 2019 there have been two dozen violations primarily related to exceedance of the pH, turbidity, and ammonia limits. The violations also included a couple of instances of failure to monitor and exceeding a hold time. Most limitation violations were dismissed by the

Compliance and Enforcement Section. The ammonia limit exceedances and failure to sample occurrences remain on the record as violations. There has been no ACL since 2015.

3. The Discharger was issued Time Schedule Order (TSO) R5-2011-0907 on 21 September 2011. The TSO was amended in October 2014. The TSO included interim effluent limitations (MDEL = 31 µg/L, AMEL = 9 µg/L) and a time schedule to comply with final effluent limitations for selenium. The TSO required compliance with the final effluent limitations for selenium (MDEL = 9.2 µg/L, AMEL = 3.2 µg/L) by 21 September 2016. Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, there have been no violations of the effluent limits for selenium.

4. The Discharger's existing permit, Order R5-2014-0120-01, includes interim annual average effluent limitations of 1835 µmhos/cm for electrical conductivity (EC) and 3.1 mg/L for boron with a final compliance date of 1 January 2021. Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, there have been no violations of the final effluent limits for EC, boron, and methylmercury.

E. Planned Changes – None Proposed by Discharger

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. Additionally, the adoption of land discharge requirements for the Facility constitutes permitting of an existing facility that is categorically exempt from the provisions of CEQA pursuant to California Code of Regulations, title 14, section 15301.

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

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

a. **Basin Plan.** The Central Valley Water Board adopted a Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018 (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plan in Table 2-1, Section 2, identifies present and potential uses for the Yolo Bypass, which includes Tule Canal and the unnamed tributary to Tule Canal. The Basin Plan does not specifically assign municipal and domestic supply as a beneficial use to the Yolo Bypass. Therefore, this Order does not apply the municipal and domestic water supply beneficial use to discharges to Tule Canal or the unnamed tributary. Thus, beneficial uses applicable to Tule Canal and the unnamed tributary of Tule Canal are as follows:

Table F-8. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Tule Canal and unnamed tributary of Tule Canal	Existing: Agricultural supply including stock watering (AGR); Water contact recreation (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: Cold freshwater habitat (COLD)
002	Groundwater	Existing: Municipal and domestic supply (MUN); Agricultural supply (AGR); Industrial service supply (IND); and Industrial process supply (PRO)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR)**. U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy**. On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface

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

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

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

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

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

limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

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

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

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

9. **Storm Water Requirements**. U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Discharger has submitted a Notice of Intent (NOI) and been approved for coverage under the State Water Board's Industrial Storm Water General Order. Therefore, this Order does not regulate storm water.

10. **Statewide General Waste Discharge Requirements for Sanitary Sewer Systems**. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The State Water Board amended the MRP for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for

coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMP's) and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.

The Discharger is subject to the requirements of, and must comply with, State Water Board Order 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as amended by State Water Board Order WQ 2013-0058-EXEC and any subsequent order.

11. **Sewage Sludge and Biosolids**. This Order does not authorize any act that results in violation of requirements administered by U.S. EPA to implement 40 C.F.R. Part 503, Standards for the Use or Disposal of Sewage Sludge. These standards regulate the final use or disposal of sewage sludge that is generated during the treatment of domestic sewage in a municipal wastewater treatment facility. The Discharger is responsible for meeting all applicable requirements of 40 C.F.R. Part 503 that are under U.S. EPA's enforcement authority.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 16 April 2018 U.S. EPA gave final approval to California's 2014-2016 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The listing for Tule Canal includes boron, fecal indicator bacteria, and salinity. In addition, the Sacramento and San Joaquin Delta Waterways are listed for chlorpyrifos and diazinon, and mercury.

2. Table F-9, below, identifies the 303(d) listings for Tule Canal. At the time of this permit renewal, there are no approved TMDL's for Tule Canal with wasteload allocations (WLAs) that apply to this Facility.

Table F-9. 303 (d) List for Tule Canal

Pollutant	Potential Sources	TMDL Status
Boron	Source Unknown	TMDL still required
Fecal Indicator Bacteria	Source Unknown	TMDL still required
Salinity	Source Unknown	TMDL still required

3. Table F-10, below, identifies the 303(d) listings for the Sacramento and San Joaquin Delta Waterways and the applicable TMDLs with WLAs that apply to this Facility. This permit includes WQBELs that are consistent with the assumptions and considerations of the applicable WLAs in the chlorpyrifos and diazinon and the mercury TMDLs.

Table F-10. 303 (d) List for Sacramento and San Joaquin Delta Waterways with impacts to Tule Canal and City of Woodland WPCF

Pollutant	Potential Sources	TMDL Adopted and Effective Date	WLA
Chlorpyrifos and diazinon	Agriculture, Urban Runoff	10 October 2007	See Chapter 4, Basin Plan
Mercury	Resource Extraction	20 October 2011	0.43 grams for City of Woodland

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

E. Other Plans, Polices and Regulations

1. **Title 27.** Discharges of wastewater to land, including but not limited to wastewater treatment ponds, are exempt from the requirements of Title 27, CCR, based on section 20090 *et seq.* These facilities include the algae production ponds, the emergency flow equalization pond, and the sludge stabilization ponds. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 et seq (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

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

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

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

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., section 1311(b)(1)(C); 40 C.F.R. section 122.44(d)(1)]. NPDES permits must

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

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

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

contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."

A. Discharge Prohibitions

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

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

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

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

5. **Prohibition III.E (Average Dry Weather Flow)**. This prohibition is based on the design average dry weather flow treatment capacity rating for the Facility and ensures the Facility is operated within its treatment capacity. Previous Order R5-2014-0120-01 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

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 at 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. A daily maximum effluent limitation for BOD_5 and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month. This Order requires Water Quality Based Effluent Limitations (WQBEL's) that are equal to or more stringent than the secondary technology-based treatment described in 40 CFR part 133 (See section IV.C.3.d of the Fact Sheet for a discussion on Pathogens which includes WQBEL's for BOD_5 and TSS.)

b. **Flow.** The Facility was designed to provide a tertiary level of treatment for up to a design flow of 10.4 mgd. Therefore, this Order contains an

average dry weather discharge flow discharge prohibition of 10.4 mgd. Discharge flow above 10.4 MGD is prohibited.

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. This Order, however, requires more stringent WQBEL's for pH to comply with the Basin Plan's water quality objectives for pH (6.5 to 8.5).

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-11. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations
Biochemical Oxygen Demand (5-Day @ 20ºCelsius)	mg/L	AMEL 30 AWEL 45
Total Suspended Solids	mg/L	AMEL 30 AWEL 45
pH	Standard Units	Instantaneous Maximum 6.0 Instantaneous Minimum 9.0

Table F-11 Notes:

Note 1. More stringent WQBEL's for BOD_5, TSS, and pH are applicable and are established as final effluent limitations in this Order (see section IV.C.3.d of this Fact Sheet).

Note 2. AMEL = Average Monthly Effluent Limitation

Note 3. AWEL = Average Weekly Effluent Limitation

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 requirements, is discussed in section IV.C.3 of the Fact Sheet.

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

the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

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

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

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

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plan in Table 2-1, Section 2, identifies present and potential uses for the Yolo Bypass, which includes Tule Canal and the unnamed tributary of Tule Canal. The Basin Plan does not specifically assign municipal and domestic supply as a beneficial use to the Yolo Bypass. Therefore, this Order does not apply the municipal and domestic water supply beneficial use to discharges to Tule Canal.

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

The federal CWA section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal

Regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from January 2017 through April 2019, which includes effluent and ambient background data submitted in SMRs, the Effluent and Receiving Water Characterization Study, and the Report of Waste Discharge (ROWD).

c. **Flow Study and Rapid Bioassessment of Tule Canal, and Resulting Chronic Toxicity Monitoring Trigger.** Between 2009 and 2013, chronic toxicity to the green algae *Selenastrum capricornutum* was reported as instances of reduction in growth between April and October each year, ranging between 1 and 2 TUc. During the same period, the Discharger conducted a TRE to determine the cause of reduction in algae growth.

   The Discharger submitted a 2013 TRE Work Plan Addendum per Regional Board guidance to determine whether the discharge was toxic to algae in downstream waters in April through October. The TRE Work Plan addendum proposed a flow study and Rapid Bioassessment protocols for Tule Canal to determine whether there were significant effects to the periphyton (including algae), benthic macroinvertebrate, and fish communities downstream of the discharge.

   Results of the flow study indicated sufficient flow in Tule Canal between April and October to prevent chronic toxicity effects on algal communities. Results of the Rapid Bioassessment showed no significant difference in the algal communities upstream and downstream of the Facility discharge.

   Based on the results of the flow study and Rapid Bioassessment, the numeric toxicity monitoring trigger for the green algae *Selenastrum capricornutum*, was modified to > 2 TUc and is fully protective of the Basin Plan narrative toxicity objective. The previous permit (Order R5-2014-0120-01) included a narrative effluent limitation for Chronic Toxicity and a numeric monitoring trigger of 2 TUc for *S. capricornutum*.

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

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

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP and the CTR .The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones .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). This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a three-year period on average. The CTR requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge. The CTR does not define the term "ambient," as applied in 40 C.F.R. section 131.38(c)(2)(i). Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

Summary findings

At design discharge conditions Tule Canal is effluent dominated. Under these regularly occurring critical conditions the effluent is the receiving water that is used to define the ambient receiving water conditions to define the appropriate water quality criteria in accordance with the CTR and SIP, otherwise if ambient downstream hardness was collected on the same day as effluent hardness, the downstream ambient hardness value is used. The Sacramento Superior Court has previously upheld the Central Valley Water Board's use of effluent hardness levels in effluent-dominated streams when developing effluent limitations for hardness-dependent metals. (California Sportfishing Protection Alliance v. California Regional Water Quality Control Board, Central Valley Region, Super. Ct. Sacramento County, 2012, No. 34-2009-80000309) (Order Denying Petitioners' Motion to Strike Respondent's Return of Writ of Mandate and Granting Discharge of the Writ)). The ambient hardness for Tule Canal is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 150 mg/L to 270 mg/L based on all collected ambient data from January 2017 through April 2019. Given the high variability in ambient hardness values, there is no single hardness value

that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 150 mg/L (minimum) up to 270 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-11 for the following reasons.

i. The ambient receiving water hardness values shown in Table F-11 are consistent with design discharge conditions and will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.

ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-11 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.

iii. Using an ambient hardness that is higher than the minimum observed ambient hardness will result in limits that may allow increased metals to be discharged to Tule Canal, but such discharge is allowed under the State Antidegradation Policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in section IV.D.4 of the Fact Sheet). The State Antidegradation Policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

iv. Using the ambient hardness values shown in Table F-11 is consistent with the CTR and SIP’s requirements for developing metals criteria.

Table F-12. Summary of CTR Criteria for Hardness-Dependent Metals

CTR Metals	Ambient Hardness (mg/L)	CTR Criteria (µg/L, total recoverable) (Acute)	CTR Criteria (µg/L, total recoverable) (Chronic)
Copper	150	21	13
Chromium III	150	2400	290
Cadmium	150 (acute) 150 (chronic)	7.1	3.4
Lead	150	140	5.3
Nickel	150	660	74
Silver	150	8.2	--
Zinc	150	170	170

Table F-12 Notes:

Note 1. CTR Criteria (ug/L total recoverable). Acute and chronic numbers were rounded to two significant figures in accordance with the CTR (40 C.F.R. section 131.38(b)(2)).

Note 2. Ambient hardness (mg/L). Values in table F-11 represent actual observed receiving water hardness measurements from the data set shown in Figure F-1.

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

Background

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

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

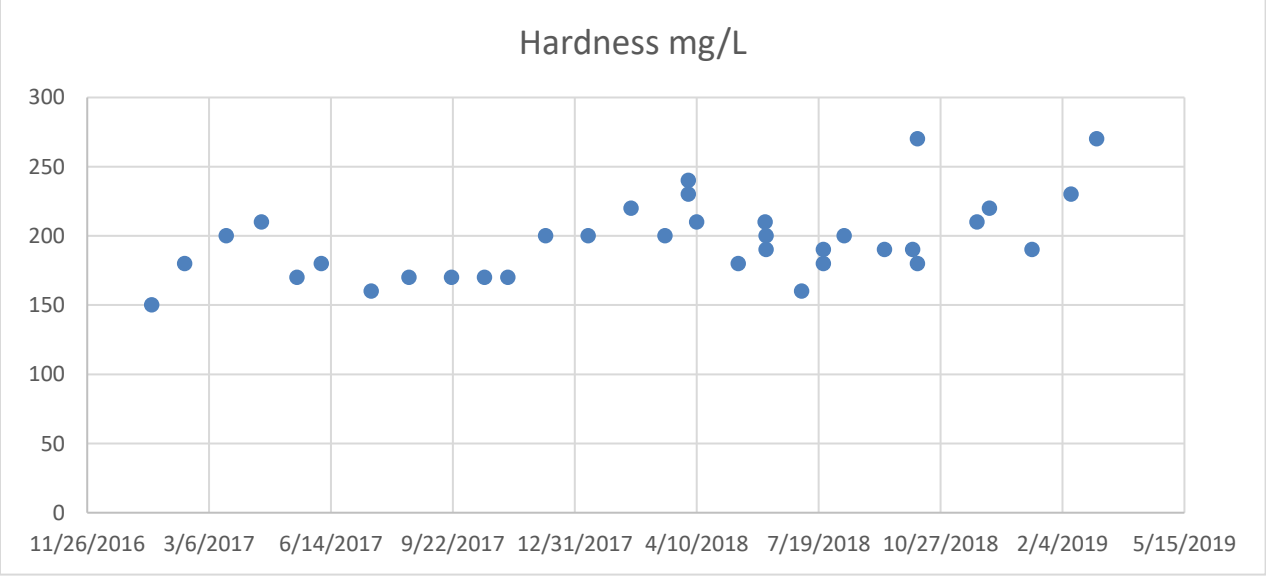
CTR Criterion = WER x ($e^{m[\ln(H)]+b}$)

Where:
WER = water-effect ratio
H = ambient hardness (as $CaCO_3$) [1]
m, b = metal- and criterion-specific constants

The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected "design" hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a three year period.[2] 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). Tule Canal is effluent dominated; therefore, the critical design flow is assumed to be zero.

Ambient conditions
The ambient receiving water hardness varied from 150 mg/L to 270 mg/L, based on 35 samples from 1 January 2017 through 30 April 2019 (see Figure F-1).

Figure F-1. Ambient Hardness (January 2017 through April 2019)



In this analysis, the entire range of ambient hardness concentrations shown in Figure F-1 were considered to determine the appropriate

[1] For this discussion, all hardness values are expressed in mg/L as $CaCO_3$.
[2] 40 C.F.R. section 131.38(c)(2)(iii) Table 4, notes 1 and 2

ambient hardness to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

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

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

Reasonable worst-case ambient conditions:

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

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

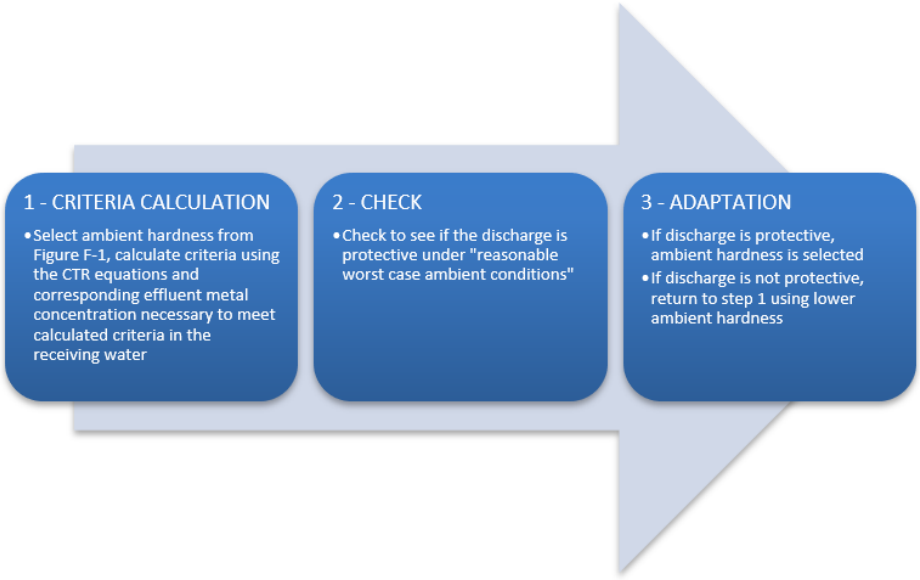
- "Low receiving water hardness." The minimum ambient receiving water hardness condition of 150 mg/L was selected to represent the reasonable worst-case receiving water hardness.

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

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

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

Figure F-2. Criteria Calculation CTR



1. CRITERIA CALCULATION. CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 150 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.[3] This should not be confused with an effluent limit. Rather, it is the Effluent Concentration Allowance (ECA), which is synonymous with the waste load allocation defined by U.S. EPA as "a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water."[4] If effluent limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.
2. CHECK. U.S. EPA's simple mass balance equation[5] is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.

[3] SIP section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.
[4] U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.
[5] U.S. EPA NPDES Permit Writers' Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

3. ADAPT. If step 2 results in:

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

   (B) Receiving water metal concentration greater than CTR criteria, then return to "Reasonable worst-case ambient conditions" (i) above, selecting a lower ambient hardness value.

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

Results of iterative analysis

The iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-11, above. Using actual ambient sample hardness values to calculate criteria will result in effluent limitations that are protective under all ambient flow conditions. Ambient hardness values are used in the CTR equations to derive criteria and effluent limitations. As an example of the three-step iterative process, Table F-12 below summarizes the numeric results for zinc based on an ambient hardness of 150 mg/L and a calculated ECA of 170 µg/L. Table F-13 further below summarizes the numeric results for silver based on an ambient hardness of 150 mg/L and a calculated ECA of 8.0 µg/L. The analysis evaluated all flow conditions, and the numeric values for the critical flow conditions are summarized in Tables F-12 and F-13, below. Ambient concentrations for zinc and silver are calculated using the worst-case downstream ambient conditions, which allows for a conservative assumption that will ensure the receiving water complies with CTR criteria. Under the "check" step, worst-case ambient receiving water conditions are used to test whether the effluent discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the iterative analyses show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-12 and F-13 below, summarize the critical flow conditions. There is no effluent limitation for zinc and/or silver as it demonstrates no reasonable potential.

Table F-13. Verification of CTR Compliance for Zinc

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Zinc Concentration (µg/L)	Complies with CTR?
1Q10	150	170	53	Yes
7Q10	150	170	53	Yes

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Zinc Concentration (µg/L)	Complies with CTR?
Max receiving water flow	180	200	53	Yes

Table F-13 Notes:

Note 1. Ambient zinc concentration is derived using worst-case ambient conditions. These conservative assumptions will ensure that the receiving water always complies with CTR criteria.

Note 2. The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water.

Note 3. There is no effluent limitation for zinc as it demonstrates no reasonable potential.

Note 4. Receiving water hardness used to compute effluent limitations; 150 mg/L.

Note 5. Effluent Concentration Allowance (ECA) for zinc; 170 µg/L.

Table F-14. Verification of CTR Compliance for Silver

Critical Flow Conditions	Hardness (mg/L)	CTR Criteria (µg/L)	Ambient Silver Concentration (µg/L)	Complies with CTR?
1Q10	150	8.0	ND	Yes
7Q10	150	8.0	ND	Yes
Max receiving water flow	180	11	ND	Yes

Table F-14 Notes:

Note 1. Ambient silver concentration is derived using worst-case ambient conditions. These conservative assumptions will ensure that the receiving water always complies with CTR criteria.

Note 2. The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water.

Note 3. There is no effluent limitation for silver as it demonstrates no reasonable potential.

Note 4. Receiving water hardness used to compute effluent limitations; 150 mg/L.

Note 5. Effluent Concentration Allowance (ECA) for silver; 8.0 µg/L.

3. **Determining the Need for WQBEL's**

Clean Water Act section 301(b)(1)(C) requires effluent limitations necessary to meet water quality standards, and 40 C.F.R. section 122.44(d) requires NPDES permits to include conditions that are necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality. Federal regulations at 40 C.F.R 122.44(d)(1)(i) state, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Additionally, 40 C.F.R. section 122(d)(1)(vii) requires effluent limits to be developed consistent with any available wasteload allocations developed and approved for the discharge. The process to determine whether a WQBEL is required as described in 40 C.F.R. section 122.44(d)(1)(i) is referred to as a reasonable potential analysis or RPA. Central Valley Water Board staff conducted RPA's for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. This section includes details of the RPA's for constituents of concern for the Facility. The entire RPA is included in the administrative record and a summary of the constituents of concern is provided in Attachment G. For priority pollutants, the SIP dictates the procedures for conducting the RPA. For non-priority pollutants the Central Valley Water Board is not restricted to one particular RPA method; therefore, the RPA's have been conducted based on EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

a. **Constituents with Total Maximum Daily Loads (TMDLs).**
40 C.F.R. section 122.44(d)(1)(vii) provides: "When developing water quality-based effluent limits under [section 122.44(d)(1)], the permitting authority shall ensure that: (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards; and (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to [Total Maximum Daily Loads regulations]." U.S. EPA construes 40 C.F.R. section 122.44(d)(1)(vii)(B) to mean that "when WLAs are available, they must be used to translate water quality standards into NPDES permit limits." 54 Fed. Reg. 23868, 23879 (June 2, 1989).

Tule Canal is subject to TMDLs for boron, fecal indicator bacteria, and salinity; however, wasteload allocations under those TMDLs are not yet available. The Sacramento and San Joaquin Delta waterways are listed for chlorpyrifos and diazinon, and for mercury, and wasteload allocations under those TMDLs are available. The Central Valley Water Board developed WQBEL's for these pollutants pursuant to 40 C.F.R. section 122.44(d)(1)(vii), which does not require or contemplate a reasonable potential analysis.

i. **Chlorpyrifos and Diazinon.**

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

on 23 June 2006 and became effective on 10 October 2007.

The amendment "…modifies Basin Plan Chapter 3 (Water Quality Objectives) to establish site specific number objectives for diazinon and chlorpyrifos in the Delta Waterways." The amendment also "…identifies the requirements to meet the additive formula already in Basin Plan Chapter 4 (Implementation), for the additive toxicity of diazinon and chlorpyrifos."

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

$S = (C_C / WQO_C) + (C_D / WQO_D) \leq 1.0$

Where:
C_C = chlorpyrifos concentration in µg/L of point source discharge
C_D = diazinon concentration in µg/L of point source discharge
WQO_C = acute or chronic chlorpyrifos water quality objective in µg/L
WQO_D = acute or chronic diazinon water quality objective in µg/L

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

Appendix A of the Diazinon and Chlorpyrifos TMDL lists Delta waterways subject to the TMDL and includes the Yolo Bypass. Footnote 2 of Appendix A states, "When flooded, the entire Yolo Bypass is a Delta Waterway. When the Delta is not flooded, the Toe Drain is the only Delta Waterway within the Yolo Bypass." Tule Canal is a part of the Yolo Bypass. Therefore, the WLA for diazinon and chlorpyrifos is applicable to the Facility when the Yolo Bypass is flooded.

In Table 3-4, the Basin Plan includes Specific Pesticide Objectives for chlorpyrifos and diazinon and the applicable water bodies. Delta Waterways are listed in Appendix 42 of the Basin Plan and include the Yolo Bypass. The water quality objectives for chlorpyrifos and diazinon are as follows:

Chlorpyrifos: 0.025 µ g/L; 1-hour average (acute)
0.015 µ g/L; 4-day average (chronic)

Not to be exceeded more than once in a three-year period.

Diazinon: 0.16 µ g/L; 1-hour average (acute)
0.10 µ g/L; 4-day average (chronic)
Not to be exceeded more than once in a three-year period.

(b) **RPA Results.** During the term of the previous permit, Order R5-2014-0120-01, the Effluent and Receiving Water Characterization Study was conducted in 2018. The Study included four samples for diazinon and four samples for chlorpyrifos.

These pesticides have been banned for public use; therefore, they were not expected to be present in the effluent. All four diazinon samples were ND and three of the four chlorpyrifos samples were ND. However, one chlorpyrifos sample was reported as detected but not quantified (DNQ) with a concentration of 0.057 µg/L and a method detection limit of 0.02 µg/L.

Whether DNQ results will be used for the reasonable potential analysis is arguable. However, due to the TMDL for chlorpyrifos and diazinon in the Delta, WQBELs for these constituents are required. The TMDL wasteload allocation applies to all NPDES dischargers to Delta waterways (including the Yolo Bypass when flooded) and will serve as the basis for WQBELs at Discharge Point 001.

(c) **WQBELs.** WQBELs for chlorpyrifos and diazinon are required based on the TMDL for chlorpyrifos and diazinon for the Delta. Therefore, this Order includes effluent limits calculated based on the wasteload allocations contained in the TMDL, as follows:

Average Monthly Effluent Limitation

$$Savg = [(Cavg/0.012) + (Davg/0.079)] < 1.0$$

Where:
Cavg = average monthly chlorpyrifos effluent concentration in µg/L
Davg = average monthly diazinon effluent concentration in µg/L

Maximum Daily Effluent Limitation

$$Smax = [(Cmax/0.025) + (Dmax/0.16)] < 1.0$$

Where:
Cmax = maximum daily chlorpyrifos effluent concentration in µg/L
Dmax = maximum daily diazinon effluent concentration in µg/L.

(d) **Plant Performance and Attainability**. During the term of the previous permit, Order R5-2014-0120-01, all four diazinon samples were ND and three of the four chlorpyrifos samples were ND. However, one chlorpyrifos sample was reported as detected but not quantified (DNQ) with a concentration of 0.057 µg/L and a method detection limit of 0.02 µg/L. Since these pesticides have been banned for public use, they are not expected to be present in the influent to the Facility. The Central Valley Water Board concludes; therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Mercury**

(a) **WQO.** In Section 3, Water Quality Objectives, the Basin Plan states "... the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150 - 500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length." The Basin Plan contains fish tissue objectives for all Delta waterways listed in Appendix 43 of the Basin Plan. Tule Canal is listed as waterway #150 in Table A43-1. The Delta Mercury Control Program contains aqueous methylmercury waste load allocations that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 ng/L (the concentration of methylmercury in water to meet the fish tissue objective). The City of Woodland WPCF is allocated 0.43 g/year of methylmercury, as listed in Table 4-16 of the Basin Plan.

The CTR contains a human health criterion of 51 ng/L for total mercury for waters from which aquatic organisms are consumed. However, in 40 CFR Part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…more stringent mercury limits may be determined and implemented through use of the State's narrative criterion." In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) **RPA Results.** Section 1.3 of the SIP states, "The RWQCB shall conduct the analysis in this section for each priority pollutant with an applicable criterion or objective, **excluding**

priority pollutants for which a TMDL has been developed, to determine if a water quality-based effluent limitation is required in the discharger's permit." (emphasis added) An RPA is not required because a TMDL was developed for methylmercury. Effluent and receiving water data were analyzed using data collected during the term or Order R5-2014-0120-01.

Effluent monitoring data for methylmercury and total mercury are available from monthly monitoring reports and the Effluent and Receiving Water Characterization Study in 2018. Receiving water monitoring data for methylmercury and total mercury are available from the Effluent and Receiving Water Characterization Study in 2018.

Total mercury was not detected in the effluent or the receiving water using EPA Method 200.8. However, 40 CFR Part 136, which specifies U.S. EPA's approved methods, does not include EPA Method 200.8 as an acceptable method for analysis of mercury. The Central Valley Water Board finds that the sample data for total mercury in the monthly SMRs and Effluent and Receiving Water Characterization study is inappropriate and did not use the data in conducting the RPA for total mercury.

Methylmercury was analyzed in the effluent and receiving water using U.S. EPA Method 1630. Out of 30 effluent samples, 11 had methylmercury reported as detected but not quantified ranging between 0.02 ng/L and 0.04 ng/L. In the 4 receiving water samples methylmercury was detected ranging between 0.251 ng/L and 0.79 ng/L. Mercury in the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health for total mercury. This Order contains a final WQBEL for methylmercury based on the wasteload allocation.

(c) **WQBELs**. The Basin Plan's Delta Mercury Control Program includes wasteload allocations for POTW's in the Delta and Yolo Bypass, including for the Discharger. This Order contains a final WQBEL for methylmercury based on the wasteload allocation; the total calendar year annual methylmercury load shall not exceed 0.43 grams, effective 31 December 2030.

This Order also contains an interim total mercury effluent limitation, Effective immediately and until 30 December 2030, the effluent calendar year annual total mercury load shall not exceed 481 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury.

For mercury, the Delta Mercury Control Program requires POTWs to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9_{th} percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges. Interim limitations for total recoverable mercury were calculated in previous Order R5-2014-0120-01 and continued in this Order. This Order includes a performance-based limit of 481 grams/year, derived from the existing mass loading limitation, as follows:

0.088 lbs/month x 12 months/year x 454 grams/lb = 481 grams/year

(d) **Plant Performance and Attainability.** Based on the available information, the Central Valley Water Board finds the Discharger is unable to immediately comply with the final WQBELs for methylmercury. Therefore, a compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in this Order.

b. **Constituents with No Reasonable Potential.** Central Valley Water Board staff conducted reasonable potential analyses for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. All reasonable potential analyses are included in the administrative record and a summary of the constituents of concern is provided in Attachment G. WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an instream excursion of an applicable water quality objective; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

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

i. **Aluminum**

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 (Al3+) binding to negatively charged fish gills.

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

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 Tule Canal, the receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, Section 4.2.2.1.9; see also, 40 CFR 122.44(d)(vi).

1988 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 measure 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.[6] Effluent and Tule Canal monitoring data

[6] "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

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 Table F-15 below, and therefore, the Central Valley Water Board does not expect aluminum to be as toxic in Tule Canal as in the previously described toxicity tests. The pH of Tule Canal, the receiving water, ranged from 7.9 to 8.0 based on 4 monitoring results obtained between 1 January 2017 and 1 April 2019. 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 Tule Canal ranged from 180 mg/L to 270 mg/L, based on 4 samples from the same period, which is above the test conditions, and thus less toxic, than the tests used to develop the chronic criterion. DOC monitoring was not conducted under the previous permit Order R5-2014-0120-01. DOC monitoring is required in the monitoring and reporting program of this Order.

Table F-15. Aluminum Toxicity Test vs Site-Specific Conditions

Parameters	Units	Test Conditions for Applicability of Chronic Criterion	Effluent	Receiving Water
pH	standard units	6.0 – 6.5	6.7 – 8.1	7.9 – 8.0
Hardness, Total (as CaCO3)	mg/L	12	150	180
Aluminum, Total Recoverable	µg/L	87.2 – 390	180 – 590	640 – 1600

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 Tule Canal are similar, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate for Tule Canal. As shown in the following Table F-16, all EC_{50}[7] 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 Tule Canal, is less toxic (or less reactive) to aquatic species then demonstrated in

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

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

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 Tule Canal.

Table F-16. Central Valley Region Site-Specific Aluminum Toxicity Data

Discharger	Test Waters	Hardness	Total Aluminum EC_{50}	pH	WER	Test Species
Manteca	Surface Water/ Effluent	124	>8600	9.14	N/C	*Oncorhynchus mykiss* (rainbow trout)
Auburn	Surface Water	16	>16500	7.44	N/C	*Oncorhynchus mykiss* (rainbow trout)
Modesto	Surface Water/ Effluent	120/156	>34250	8.96	>229	*Oncorhynchus mykiss* (rainbow trout)
Yuba City	Surface Water/ Effluent	114/164	>8000	7.60/7.46	>53.5	*Oncorhynchus mykiss* (rainbow trout)
Auburn	Effluent	99	>5270	7.44	>19.3	*Ceriodaphnia dubia* (water flea)
Auburn	Surface Water	16	>5160	7.44	>12.4	*Ceriodaphnia dubia* (water flea)
Manteca	Surface Water/ Effluent	124	>8800	9.14	N/C	*Ceriodaphnia dubia* (water flea)
Manteca	Effluent	117	>8700	7.21	>27.8	*Ceriodaphnia dubia* (water flea)
Manteca	Surface Water	57	7823	7.58	25.0	*Ceriodaphnia dubia* (water flea)
Manteca	Effluent	139	>9500	7.97	>21.2	*Ceriodaphnia dubia* (water flea)
Manteca	Surface Water	104	>11000	8.28	>24.5	*Ceriodaphnia dubia* (water flea)
Manteca	Effluent	128	>9700	7.78	>25.0	*Ceriodaphnia dubia* (water flea)
Manteca	Surface Water	85	>9450	7.85	>25.7	*Ceriodaphnia dubia* (water flea)
Manteca	Effluent	106	>11900	7.66	>15.3	*Ceriodaphnia dubia* (water flea)
Manteca	Surface Water	146	>10650	7.81	>13.7	*Ceriodaphnia dubia* (water flea)
Modesto	Surface Water/ Effluent	120/156	31604	8.96	211	*Ceriodaphnia dubia* (water flea)
Yuba City	Surface Water/ Effluent	114/164	>8000	7.60/7.46	>53.5	*Ceriodaphnia dubia* (water flea)
Placer County (SMD 1)	Effluent	150	>5000	7.4 – 8.7	>13.7	*Ceriodaphnia dubia* (water flea)

Discharger	Test Waters	Hardness	Total Aluminum EC_{50}	pH	WER	Test Species
Manteca	Surface Water/Effluent	124	>8350	9.14	N/C	*Daphnia magna* (water flea)
Modesto	Surface Water/ Effluent	120/156	>11900	8.96	>79.6	*Daphnia magna* (water flea)
Yuba City	Surface Water/ Effluent	114/164[1]	>8000	7.60/7.46	>53.5	*Daphnia magna* (water flea)

The Discharger has not conducted a toxicity test for aluminum; however, the Placer County SMD-1 conducted toxicity tests in Miners Ravine. As shown, the test water quality characteristics of Miners Ravine near Placer County SMD-1 are similar for pH and hardness in Tule Canal, with the hardness reported as 150 mg/L as $CaCO_3$ in comparison to the hardness of the Tule Canal near the discharge with a low of 150 mg/L as $CaCO_3$ and that averages 197 mg/L as $CaCO_3$. Thus, results of the site-specific study conducted on Miners Ravine near Placer County SMD-1 are representative of Tule Canal near the discharge. Therefore, the Placer County SMD-1 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 Placer County SMD-1 aluminum toxicity study resulted in a minimum site-specific aluminum objective of 2740 µg/L. Thus, these results support the conclusion that the 87 µg/L chronic criterion is overly stringent for Tule Canal near the discharge.

2018 U.S. EPA NAWQC. On 21 December 2018, U.S. EPA finalized updated NAWQC for aluminum in freshwater that reflect the latest science and allow for development of criteria reflecting the impact of local water chemistry on aluminum toxicity to aquatic life. The updated criteria account for the site-specific bioavailability of aluminum in receiving waters, which is dependent on pH, dissolved organic carbon, and hardness. Receiving water monitoring for dissolved organic carbon is not available; therefore, sufficient data is not available to calculate updated aluminum criteria applicable to Tule Canal. In addition to pH and hardness, this Order establishes effluent and receiving water monitoring requirements for dissolved organic carbon to collect sufficient data for calculating future site-specific freshwater aluminum criteria in accordance with the 2018 NAWQC. Until such data is available to implement the 2018 criteria, the 1988 NAWQC will continue to be implemented

Applicable WQOs. Because the MUN beneficial use is not applicable to Tule Canal, this Order does not implement the Secondary MCL of 200 µg/L as an annual average for the protection of MUN. This Order does implement the Basin Plan's narrative toxicity objective for the protection of aquatic life using an acute (1-hour) criterion of 750 µg/L U.S. EPA's NAWQC and the discussion above indicate that the chronic criterion of 87 µg/L is overly stringent based on site-specific conditions.

(b) **RPA Results.** The maximum effluent concentration (MEC) for aluminum was 590 µg/L while the maximum observed upstream receiving water concentration was 1600 µg/L. Therefore, aluminum in the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the acute (1-hour) criterion 750 µg/L. The maximum background receiving water concentration exceeded the acute criterion. However, aluminum is not a CTR constituent, therefore, effluent limitations are not required and not included in this Order.

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

(a) **WQO.** The California Division of Drinking Water has a Primary MCL of 4 µg/L for bis (2-ethylhexyl)phthalate and the CTR has criteria for human health protection of 1.8 µg/L for consumption of water and fish and 5.9 µg/L for fish consumption only.

(b) **RPA Results.** The Monitoring and Reporting Plan in the previous permit (Order R5-2014-0120-01) required quarterly monitoring of bis (2-ethylhexyl)phthalate in lieu of effluent limitations. Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, there have been no reported detections of bis (2-ethylhexyl) phthalate in the effluent. During the term of the previous permit, bis (2-ethylhexyl)phthalate was reported as not detected (ND) in all samples. Effluent limitations for bis (2-ethylhexyl)phthalate are not necessary.

iii. **Boron**

(a) **WQO.** Tule Canal is listed as a 2014-2016 303(d) List Water Quality Limited Segment for boron. At the time of this permit renewal, there are no approved TMDLs for boron in Tule Canal with WLAs that apply to this Facility.

Drs. Grattan and Isidoro-Ramirez completed a site-specific study for boron, EC, and fluoride in 2006 (Grattan, S.R., and Isidoro-Ramirez, D, May 2006, *An Approach to Develop Site-Specific Criteria for Electrical Conductivity, Boron, and Fluoride to Protect Agricultural Beneficial Uses*) (Woodland Study). The Woodland Study demonstrated that a boron concentration of

1,500 µg/L is protective of the agricultural beneficial uses in the Yolo Bypass. This site-specific criterion was developed to protect the agricultural beneficial use by taking into account soil type, irrigation management practices, water quality, crop evapotranspiration, and inputs from irrigation and rainfall, while protecting the most sensitive crops in that area.

(b) **RPA Results.** The Discharger's previous permit, Order R5-2014-0120-01, included an interim annual average effluent limitation of 3.1 mg/L for boron with a final compliance date of 1 January 2021 and final effluent limit of 1.5 mg/L. Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, there have been no violations of the final effluent limits for boron (MEC = 0.66 mg/L). Effluent limitations for boron are not necessary.

iv. **Chlorine Residual**

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

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

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

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "State implementation procedures might allow, or even require, a permit writer to determine reasonable

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

The Discharger no longer uses chlorine for disinfection; therefore, effluent limitations are not necessary.

v. **Endrin Aldehyde (Persistent Chlorinated Hydrocarbon Pesticide)**

(a) **WQO.** The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include aldrin; alpha-BHC; beta-BHC; gamma-BHC; delta-BHC; chlordane; 4,4-DDT; 4,4-DDE; 4,4-DDD; dieldrin; alpha-endosulfan; beta-endosulfan; endosulfan sulfate; endrin; endrin aldehyde; heptachlor; heptachlor epoxide; and toxaphene.

(b) **RPA Results.** Four samples were analyzed for endrin aldehyde; one sample was reported detected but not quantified (DNQ) at a concentration of 0.0067 µg/L, with an ML of 0.01 µg/L and an MDL of 0.00067 µg/L. DNQ analytical results are not reliable and this data point was not included in the RPA. The other three samples were ND with the same ML and MDL. Therefore, there is no reasonable potential for endrin aldehyde and effluent limitations are not included in this Order.

vi. **Hardness-Dependent Metals**

(a) **WQO.** See Section IV.C.2.e.

(b) **RPA Results.** The water supply was changed in July 2016 and plant upgrades were completed in December 2016. Between January 2017 and March 2019, the effluent hardness ranged from 150 to 270 mg/L and receiving water hardness ranged from 180 mg/L to 230 mg/L. There is no reasonable potential for any of the metals to exceed criteria. Effluent limitations for hardness-dependent metals are not necessary.

vii. **Nitrate and Nitrite**

(a) **WQO.** DDW has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

U.S. EPA has developed a primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

The Basin Plan in Table 2-1, Section 2, identifies present and potential uses for the Yolo Bypass, which includes Tule Canal. The Basin Plan does not specifically assign municipal and domestic supply as a beneficial use to the Yolo Bypass. Therefore, this Order does not apply the municipal and domestic water supply beneficial use to discharges to Tule Canal. Therefore, human health criteria for nitrate and nitrite are not applicable to the discharge.

(b) **RPA Results.** Since there are no applicable nitrate or nitrite water quality criteria for use in determining reasonable potential, reasonable potential does not exist for nitrate and nitrite. Furthermore, Tule Canal discharges to the Sacramento River, within the Sacramento San Joaquin Delta, approximately 8 miles downstream of the discharge point. Municipal and domestic supply is assigned as an existing beneficial use of the Sacramento San Joaquin Delta. However, the discharge would not cause an exceedance of water quality objectives in the Sacramento San Joaquin Delta due to mixing occurring in the Yolo Bypass and the ratio of flow in the Sacramento River versus the effluent flow rate of the Facility. Therefore, this Order does not contain surface water discharge effluent limitations for nitrate and nitrite.

vii. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. Table F-17, below, contains various recommended levels for EC or TDS, sulfate, and chloride.

Table F-17. Salinity Water Quality Criteria/Objectives

Parameters	Agricultural Use – Numeric Interpretation	Secondary MCL Recommended Level.	Secondary MCL Upper Level	Secondary MCL Short-term Maximum	U.S. EPA NAWQC
EC (µmhos/cm) or TDS (mg/L)	EC 1400	EC 900 or TDS 500	EC 1,600 or TDS 1,000	EC 2,200 or TDS 1,500	N/A
Sulfate (mg/L)	N/A	250	500	600	N/A
Chloride (mg/L)	N/A	250	500	600	860 1-hour / 230 4-day

Table F-17 Notes:

Note 1. **Agricultural Water Quality Objectives**. Applicable agricultural water quality objectives vary and the Basin Plan includes a narrative objective for salinity. The Discharger developed a numeric interpretation of the Basin Plan narrative objective to determine protective effluent limits.

Drs. Grattan and Isidoro-Ramirez completed a site-specific study for boron, EC, and fluoride in 2006 (Grattan, S.R., and Isidoro-Ramirez, D, May 2006, *An Approach to Develop Site-Specific Criteria for Electrical Conductivity, Boron, and Fluoride to Protect Agricultural Beneficial Uses*) (Woodland Study). Drs. Grattan and Isidoro-Ramirez developed numeric interpretations of the Basin Plan narrative objective to determine protective effluent limits. The Woodland Study demonstrated that an EC concentration of 1,400 µmhos/cm, applied as a seasonal average, is protective of the agricultural beneficial uses in the Yolo Bypass. This numeric interpretation of the Basin Plan narrative objective was developed to protect the agricultural

beneficial use by taking into account soil type, irrigation management practices, water quality, crop evapotranspiration, and inputs from irrigation and rainfall, while protecting the most sensitive crops in that area.

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.

Note 2. **Secondary MCLs.** Secondary MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.

Note 3. **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

Note 4. **Electrical Conductivity or Total Dissolved Solids.** 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, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The Woodland Study demonstrated that a numeric EC concentration of 1,400 µmhos/cm, as a seasonal average, is protective of the agricultural beneficial uses in the Yolo Bypass.

Note 5. **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(b) **RPA Results.**

(1) **Chloride.** Effluent and receiving water monitoring data for chloride is not available for the Facility.

(2) **Electrical Conductivity or Total Dissolved Solids.** Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, a maximum annual average effluent EC of 1092 µmhos/cm and a maximum monthly average of 1171 µmhos/cm were reported. These levels do not exceed the numeric interpretation of the narrative agricultural objective (1400 µmhos/cm). The background receiving water EC averaged 657 µmhos/cm.

(3) **Sulfate.** Effluent and receiving water monitoring data for sulfate is not available for the Facility.

(c) **WQBEL's.** Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to Tule Canal a tributary of the Sacramento River and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort

to address salinity in the Central Valley. Therefore, this Order includes a performance-based effluent limitation of 1250 µmhos/cm for EC to be applied as an annual average to limit the discharge to current levels.

The performance-based effluent limitation (applied as an annual average) represents the maximum annual average effluent electrical conductivity concentration for a calendar year using data from 1 January 2017 through 30 March 2019, with added safety factors. Table F-18 below, summarizes the calculations of the effluent limitations for electrical conductivity:

Table F-18. Performance-Based EC Effluent Limitation Calculation Summary

Parameter	Units	Maximum Monthly Average Concentration	Maximum Annual Average Concentration	Standard Deviation	Number of Samples	Annual Average Limitation
Electrical Conductivity	µmhos/cm	1171	1092	99.8	524	1250

Using the maximum annual average of 1092 µmhos/cm (rounded off to 1100 µmhos/cm) plus various safety factors results in the following performance-based effluent limitation:

1100 µmhos/cm + 10% + Additional Safety Factor = 1250 µmhos/cm

In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to continue to implement the approved Salinity Evaluation and Minimization Plan and submit an update with the Discharger's ROWD. Also, water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. This Order contains a reopener to amend or modify the performance-based effluent limitation for EC if Basin Plan amendments make it necessary.

(d) **Plant Performance and Attainability.** Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, there have been no exceedances

of the site-specific numeric interpretation of the narrative objective or the performance-based effluent limitation for electrical conductivity. The Central Valley Water Board concludes, therefore, that immediate compliance with the performance-based EC effluent limitations is feasible.

c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, pathogens, pH, and selenium. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Ammonia**

(a) **WQO.** The 1999 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

The U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the "2013 Criteria")[8]. The 2013 Criteria is an update to U.S. EPA's 1999 Criteria, and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species tested for development of the 2013 Criteria may not be present in some Central Valley waterways. The 2013 Criteria document therefore states that, "unionid mussel species are not prevalent in some waters, such as the arid west …" and provides that, "In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria dataset to better represent the species present at the site."

The Central Valley Water Board issued a 3 April 2014 California Water Code section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life

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

(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 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. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature.

The previous Order R5-2014-0120-01 contained ammonia limits based on the maximum permitted pH (8.5) and paired downstream pH/temperature data. The maximum permitted effluent pH is 8.5, as the Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

The previous Order R5-2014-0120-01 contained a 30-day CCC of 1.45 mg/L (as N).

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan narrative toxicity objective. Federal regulations at 40 C.F.R. section122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either

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

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

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan's narrative

toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBEL's are required.

(c) **WQBEL's.** The Central Valley Water Board calculates WQBEL's in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

The previous Order R5-2014-0120-01 contained ammonia limits based on the maximum permitted pH (8.5) and paired downstream pH/temperature data. The AMEL was calculated as 1.1 mg/L and the MDEL was calculated as 2.1 mg/L. The AWEL was calculated to be 1.9 mg/L. This Order contains an AMEL of 1.1 mg/L and an AWEL of 1.9 mg/L based on previous Order R5-2014-0120-01.

(d) **Plant Performance and Attainability.** The maximum observed monthly average concentration was 0.57 mg/L, which does not exceed the AMEL of 1.1 mg/L. The maximum observed weekly average concentration was 2.1 mg/L, which exceeded the AWEL of 1.9 mg/L once between January 2017 and April 2019. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations for ammonia is feasible.

ii. **Pathogens**

(a) **WQO.** DDW has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public

access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as "…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities." Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life, and constitute a threatened pollution and nuisance under CWC section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL's are required.

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

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

The beneficial uses of Tule Canal include water contact recreation and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

(c) **WQBEL's.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria, weekly average specifications are

impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10NTU as an instantaneous maximum.

This Order contains effluent limitations for 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 possesses a filtration and UV disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **pH**

(a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "pH shall not be depressed below 6.5 nor raised above 8.5."

(b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL's are required.

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

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

The Facility is a POTW that treats domestic wastewater. Based on 856 samples taken from 1 January 2017 to 30 April 2019, the maximum pH reported was 8.1 and the minimum was 6.7. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBEL's for pH are required in this Order.

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

(d) **Plant Performance and Attainability.** The effluent pH did not exceed nor fall below instantaneous effluent limitations. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. **Selenium**

(a) **WQO.** The California Division of Drinking Water and US EPA have a Primary MCL of 50 µg/L for selenium. The CTR has criteria for freshwater aquatic life protection of 5.0 µg/L as a 4-day average and 20 µg/L as a 1-hour average.

(b) **RPA Results.** Since the water supply was changed in July 2016 and the plant upgrades were completed in December 2016, the selenium MEC = 2.7 µg/L, which does not exceed the CTR chronic criterion. The maximum background concentration of 5.5 µg/L exceeds the chronic criterion of 5 µg/L. Selenium, a CTR constituent, was also detected in the effluent; therefore, the SIP requires effluent limits for selenium.

(c) **WQBEL's.** Effluent variability using data from 1 January 2017 through 30 April 2019 results in the following effluent limitations for selenium: MDEL = 8.0 µg/L and AMEL = 4.0 µg/L, based on the CTR chronic criterion for the protection of freshwater aquatic life.

(d) **Plant Performance and Attainability.** Because the selenium MEC was 2.7 µg/L, the Central Valley Water Board concludes, that immediate compliance with the selenium effluent limitations is feasible.

4. **WQBEL Calculations**

a. This Order includes calculated WQBEL's for ammonia and selenium following the methodology in this section. 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:

$ECA = C + D(C - B)$ where $C>B$, and
$ECA = C$ 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.

c. **Primary and Secondary MCLs.** For non-priority pollutants with primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the AWEL is calculated using the AWEL/AMEL multiplier, where the AWEL multiplier is based on a 98th percentile occurrence probability and the AMEL multiplier is from Table 2 of the SIP.

For non-priority pollutants with secondary MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the LTA equal to the secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

d. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBEL's are calculated using similar procedures, except that an AWEL is determined utilizing multipliers based on a 98th percentile occurrence probability.

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

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

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

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

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

Table F-19. Summary of Water Quality-Based Effluent Limitations - Discharge Point 001

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations
Ammonia	mg/L	1.1	1.9	--
Biochemical Oxygen Demand (5-day @ 20ºC)	mg/L	10	15	--
Electrical Conductivity (EC)	µmhos/cm	1250 Annual Average	--	--
Total Selenium	µg/L	4.0	--	8.0
Total Suspended Solids (TSS)	mg/L	10	15	--

5. **Whole Effluent Toxicity (WET)**

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

The chronic toxicity test involves using three aquatic species: the Fathead Minnow (*Pimephales promelas*), the water flea (*Ceriodaphnia dubia*), and the green algae (*Selenastrum capricornutum*). *Selenastrum capricornutum* was

also known as *Pseudokirchneriella subcapitata* in recent literature and is currently known as *Raphidocelis subcapitata.* State and Federal regulations have not been updated to reflect the name changes. Therefore, this Order refers to the green algae used as one of the Test Species in the Chronic Toxicity Test, as *Selenastrum capricornutum.*

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

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

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

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

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page section 3.1.20.) The table below is chronic WET testing performed by the Discharger from 1 January 2017 through 30 April 2019. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Table F-20. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow Pimephales promelas Survival (TUc)	Fathead Minnow Pimephales promelas Growth (TUc)	Water Flea Ceriodaphnia dubia Survival (TUc)	Water Flea Ceriodaphnia dubia Reproduction (TUc)	Green Algae Selenastrum capricornutum Growth (TUc)
02/13/2017	1	1	1	8	1
02/13/2017	--	--	1	1	--
06/05/2017	1	1	1	8	1
08/28/2017	1	1	1	1	1
11/13/2017	1	1	1	8	1
11/13/2017	--	--	1	1	--
01/30/2018	1	1	1	8	1
05/11/2018	1	1	1	1	1
08/06/2018	--	--	1	1	1
11/02/2018	1	1	1	8	1
03/01/2019	1	>1	1	1	1

Table F-20 Notes:

Note 1. On 03/01/2019, the Fathead Minnow growth toxicity test passed the TST.

Note 2. When the Water Flea reproduction toxicity = 8 TUc, the reproduction NOEC = 12.5%.

Note 3. On 01/30/2018, antibiotic treatment of the 100% effluent removed the Water Flea reproduction toxicity, suggesting that water-borne pathogens were entirely responsible for the reproductive inhibition detected in the test.

Note 4. On 11/02/2018, when the 100% effluent concentration of the Water Flea was compared to the lab control, there was no significant toxicity.

i. **RPA.** For *Ceriodaphnia dubia* chronic toxicity testing results exceeding 1.3 TUc (as $100/EC_{25}$) and a percent effect at 100 percent effluent exceeding 25 percent would demonstrate that the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic

toxicity testing conducted between January 2017 and April 2019 the maximum chronic toxicity result was 1 TUc. In five of nine tests pathogen-related toxicity was found so the tests were not used for the RPA. Antibiotic treatment removed the toxicity, suggesting that water-borne pathogens were entirely responsible for the reproductive inhibition detected in the test. Therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective for chronic toxicity effects on *Ceriodaphnia dubia*.

For *Pimephales promelas* chronic toxicity testing results exceeding 1.3 TUc (as $100/EC_{25}$) and a percent effect at 100 percent effluent exceeding 25 percent would demonstrate that the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between January 2017 and April 2019 the maximum chronic toxicity result was >1 TUc with a percent effect at 100 percent effluent less than 25 percent, in the chronic toxicity test conducted in First Quarter 2019. Subsequent testing showed that the data passed the TST test. Therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective for chronic toxicity effects on *Pimephales promelas*.

In the previous permit (Order R5-2014-0120-01) the numeric toxicity monitoring trigger for *Selenastrum capricornutum* was >2 TUc (where TUc = 100/NOEC). Chronic toxicity testing results exceeding 2 TUc would demonstrate that the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between January 2017 and April 2019 the maximum chronic toxicity result was 1 TUc in all tests; therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan's narrative toxicity objective for chronic toxicity effects on *Selenastrum capricornutum*.

This Order includes numeric toxicity monitoring triggers as described in Special Provisions, sections VI.C.2.b and c.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 C.F.R section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CF.R. section 122.45(f)(1), some effluent

limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL's) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

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

2. **Averaging Periods for Effluent Limitations**

40 C.F.R. section 122.45 (d) requires average weekly and average monthly discharge limitations for POTW's unless impracticable. For selenium, average weekly effluent limitations have been replaced with maximum daily effluent limitations in accordance with section 1.4 of the SIP. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

3. **Satisfaction of Anti-Backsliding Requirements**

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in the Facility's previous Order R5-2014-0120-01, with the exception of effluent limitations for boron and chlorine residual, the mass-based effluent limits for selenium, and the maximum daily and mass-based effluent limits for ammonia, BOD_5 and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2014-0120-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

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

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

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

Tule Canal is considered an attainment water for chlorine residual, ammonia, selenium, BOD_5 and TSS because the receiving water is **not** listed as impaired on the 303(d) list for these constituents.[9] As discussed below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the mass-base effluent limits for selenium and the maximum daily and mass-based effluent limits for ammonia, BOD_5, and TSS from this Order 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 sections IV.C.3.b.iii (for boron) and IV.C.3.b.iv (for chorine residual) of this Fact Sheet, updated information that was not available at the time Order R5-2014-0120-01 was issued indicates that boron and chlorine residual do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water.

i. **Boron.** Effluent monitoring data collected between 1 January 2017 and 30 April 2019 indicates that boron in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the site-specific numeric interpretation of the boron objective of 1500 µg/L

ii. **Chlorine Residual.** Chlorine is no longer used for disinfection of wastewater at the Facility. Chlorine does not exhibit reasonable potential to cause or contribute to an exceedance of the acute (0.019 mg/L) or chronic (0.011 mg/L) criteria for the protection of freshwater aquatic life.

Thus, removal or relaxation of the effluent limitations for boron and chlorine residual from this Order 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.

[9] "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.

4. **Antidegradation Policies**

a. **Surface Water**

This Order does not allow for an increase in flow or mass of pollutants to the receiving water, Tule Canal. 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 surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing surface water quality will be insignificant.

This Order removes effluent limitations for boron and chlorine residual and removes the maximum daily effluent limits for ammonia 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. The removal of WQBEL's for these parameters will not results in an increase in pollutants concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the removal of the effluent limitations does not result in an increase in pollutants or any additional degradation of the receiving water. Thus, the removal of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

This Order also removes mass-based effluent limitations for selenium and maximum daily and mass-based effluent limitations for ammonia, BOD_5 and TSS based on 40 CFR parts 122.45 (d) and (f). The removal of mass-based effluent limitations for selenium and maximum daily and mass-based effluent limits for ammonia, BOD_5 and TSS will not result in a decrease in the level of treatment or control or a reduction in water quality.

Furthermore, both concentration-based AMEL's and AWEL's remain for ammonia, BOD_5 and TSS and concentration-based AMEL's and MDEL's remain for selenium, as well as an average dry weather flow prohibition that limits the amount of flow that can be discharged to the receiving water during dry weather months. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and permitted average dry weather flow by a conversion factor to determine the mass-based effluent limitations. The Central Valley Water Board finds that the removal of mass-based effluent limitations for selenium and

maximum daily and mass-based effluent limits for ammonia, BOD_5 and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal of mass-based effluent limitations for selenium and maximum daily and mass-based effluent limits for ammonia, BOD_5 and TSS is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

This Order contains interim effluent limitations for total recoverable mercury. Limited, short-term degradation is consistent with state and federal policies and is specifically authorized by 40 C.F.R. section 122.47 and the EPA-approved Compliance Schedule Policy.

b. **Groundwater.**

The Discharger uses one unlined emergency storage pond and nine unlined algae production ponds to contain untreated and secondary treated wastewater. 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 may result in an increase in the concentration of these constituents in groundwater. The State Anti-Degradation Policy generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:

i. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;

ii. The degradation will not unreasonably affect present and anticipated future beneficial uses;

iii. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and

iv. The degradation is consistent with the maximum benefit to the people of the state.

Groundwater monitoring results, submitted as part of the Report of Waste Discharge, show that nitrate, total kjeldahl nitrogen, total dissolved solids, and EC concentrations have increased in downgradient wells when compared to upgradient wells as shown in Figures F-3, F-4, F-5, and F-6 below. This Order requires that the Discharger conduct a Groundwater Antidegradation Analysis and BPTC Evaluation for Groundwater Protection. This Order also requires that the Discharger comply with pond discharge effluent and groundwater limitations. A compliance schedule has been allowed for the Discharger to construct improvements as necessary to comply with this Order.

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 BOD_5, TSS, flow, and pH. Technology-based restrictions on BOD_5, TSS, flow, and pH are discussed in sections IV.B.2.a and c of the 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. For BOD_5, TSS, and pH, both technology-based effluent limitations and water quality-based effluent limitations are applicable. The more stringent of these effluent limitations are implemented by this Order. These limitations are not more stringent than required by the CWA. Water quality-based effluent limitations for BOD_5, TSS, and pH are discussed in sections IV.C.3.d.ii and iii.

This Order also contains land discharge effluent limitations for BOD_5, total coliform organisms, and nitrate, and groundwater limitations on EC, total coliform organisms, and nitrate. These limitations are discussed below in sections IV.F and V.B of this Fact Sheet.

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

Summary of Final Effluent Limitations
Discharge Point 001

Table F-21. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis
Ammonia	mg/L	AMEL 1.1 AWEL 1.9	NAWQC
Biochemical Oxygen Demand (5-day @ 20ºC)	mg/L	AMEL 10 AWEL 15	TTC
Electrical Conductivity @ 25º Celsius	µmhos/cm	AAEL 1250	PB
pH	Standard units	Instantaneous Max 8.5 Instantaneous Min 6.5	BP
Selenium, Total Recoverable	µg/L	AMEL 4.0 MDEL 8.0	CTR

Parameter	Units	Effluent Limitations	Basis
Total Coliform Organisms	MPN/100 mL	7-day median 2.2 30-day maximum 23 Instantaneous Max 240	Title 22
Total Suspended Solids (TSS)	mg/L	AMEL 10 AWEL 15	TTC

Table F-21 Notes:

Note 1. TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
BP – Based on water quality objectives contained in the Basin Plan.
PB – Performance-based.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
Title 22 – Based on State Water Board Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

Note 2. AMEL – Average Monthly Effluent Limitation
AWEL – Average Weekly Effluent Limitation
MDEL – Maximum Daily Effluent Limitation

E. Interim Effluent Limitations

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

The interim effluent limitations for total mercury are based on Facility performance. The Delta Mercury Control Program requires POTW's to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges.

This Order retains the interim performance-based effluent limitation for total mercury from Order R5-2014-0120-01 (481 grams/year), which is consistent with the intent of

the TMDL to not penalize dischargers for early actions to reduce mercury. Based on the available total mercury data collected between 2012 and 2014, which used clean hands/dirty hands techniques and analytical methods approved under 40 CFR Part 136, a performance-based interim mass effluent limit was included in Order R5-2014-0120-01. The interim effluent limitation for total mercury shall apply during the compliance schedule in lieu of the final effluent limitation for methylmercury.

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

1. **Interim Effluent Limitation for Mercury, Total Recoverable.** For mercury, the Delta Mercury Control Program requires POTWs to limit their discharges of inorganic (total) mercury to Facility performance-based levels during Phase 1. The interim inorganic (total) mercury effluent mass limit is to be derived using current, representative data and shall not exceed the 99.9th percentile of the 12-month running effluent inorganic (total) mercury mass loads. At the end of Phase 1, the interim inorganic (total) mercury mass limit will be re-evaluated and modified as appropriate. The Delta Mercury Control Program also requires interim limits established during Phase 1 and allocations will not be reduced as a result of early actions that result in reduced inorganic (total) mercury and/or methylmercury in discharges. Interim limitations for total recoverable mercury were calculated in previous Order R5-2014-0120-01 and have been continued in this Order. This Order includes a performance-based limit of 481 grams/year, derived from the existing mass loading limitation in previous Order R5-2009-0010 (0.88 lbs/month), as follows:

0.088 lbs/month x 12 months/year x 454 grams/lb = 481 grams/year

F. Land Discharge Specifications – Discharge Point 002

1. Effluent Limitations for Discharging to Ponds

a. Untreated wastewater contains elevated concentrations of BOD_5, Total Coliform Organisms, and nitrate. Periodically, untreated wastewater is discharged to the unlined Emergency Storage Pond and nine unlined algae production ponds. Untreated wastewater discharged to the unlined ponds has the potential to degrade groundwater quality at this site because there is little ability for attenuation in the intermingled sand, silt, clay, and gravel layers that constitute the vadose zone beneath this Facility. Additional information regarding the ponds is as follows:

- Depth to groundwater ranges between 3 to 20 feet.
- Pond bottoms are not lined but are completed in a clay/silt lithologic zone that hinders downward migration of wastewater. Percolation rate of the native clay may be as low as 15 inches/year or 0.002 inches/hour. In contrast, the percolation rate of sandy soils may be as high as 1 to 8 inches/hour.
- During peak flow events where the influent flow exceeds the peak flow design capacity of the facility, untreated wastewater is diverted to the emergency storage basin.
- The facility currently cannot return wastewater from the emergency storage basin to the treatment facility.
- Water in the emergency storage basin is diverted to 9 unlined algae production ponds that were part of the original WWTP.
- Secondary undisinfected wastewater is diverted year-round to the ponds to dilute the raw wastewater to control odors.
- The ponds typically contain commingled wastewater, groundwater, and rainwater year-round (depth of water in the ponds ranges between 1 to 6 feet).
- The previous permit treated the emergency storage basin and 9 unlined algae production ponds as storage ponds that were part of the treatment system; therefore, pond discharge effluent limitations or site-specific groundwater limitations were not included in the permit.
- However, since the ponds do not return water to the treatment system, they are not part of the treatment system, rather they operate as a land disposal system.
- Similar types of facilities throughout the Central Valley typically have an equalization pond with an engineered lining and a pump that can bring the raw or partially treated wastewater back to the headworks once influent flows have receded to prevent degradation of underlying groundwater and meet BPTC requirements.
- As shown in the groundwater assessment figures below, the current mode of operating the treatment ponds appears to have degraded groundwater.

b. This Order contains pond discharge effluent limitations for BOD_5, Total Coliform Organisms, and nitrate, based on secondary treatment standards to protect groundwater quality and beneficial uses. Compliance with pond discharge effluent limitations is measured at Monitoring Location EFF-002.

   i. The Discharger shall maintain compliance with the pond discharge effluent limitations specified in Table 5, section IV.B.1 of the Waste Discharge Requirements.

   ii. Discussion of water quality criteria and objectives and reasonable potential analysis for pathogens (BOD_5 and Total Coliform Organisms) may be found in section IV.C.3.d of the Fact Sheet. Discussion of water quality criteria and objectives and reasonable potential analysis for nitrate may be found in section IV.C.3.b of the

Fact Sheet. Further discussion of the pond discharge effluent limitations follows:

(a) **Pathogens.** Total Coliform Organisms are found in untreated wastewater at concentrations in excess of 2000 MPN/100mL. Due to the discharge of untreated wastewater into unlined ponds with a depth of 10 feet and a depth to groundwater of 3 to 18 feet, the Central Valley Water Board finds that pond discharge effluent limitations for Total Coliform Organisms and BOD are necessary to protect groundwater quality and the MUN beneficial use of the groundwater.

(b) **Nitrate as Nitrogen.** Nitrogen is found in untreated wastewater at concentrations up to 40 mg/L. Due to the discharge of untreated wastewater into unlined ponds with a depth of 10 feet and a depth to groundwater of 3 to 18 feet, the Central Valley Water Board finds that pond discharge effluent limitations for Nitrate as N are necessary to protect groundwater quality and the MUN beneficial use of the groundwater.

c. This Order requires continued groundwater monitoring and contains groundwater limitations. While the unlined pond bottoms are approximately 10 feet below grade, groundwater is generally encountered at approximately three to twenty feet below the ground surface and may be present as standing water in the ponds. The Discharger's groundwater monitoring data indicate that groundwater concentrations for EC, TDS, TKN, and nitrate are elevated in downgradient monitoring wells. Based on the available groundwater data and the analysis of concentrations in the discharges that can migrate to groundwater from the ponds, this Order requires that the Discharger conduct a Groundwater Antidegradation Analysis and BPTC Evaluation for Groundwater Protection. This Order contains a Compliance Schedule in section VI.C.7.a for Pond Effluent Limitations and Groundwater Limitations.

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

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

narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater

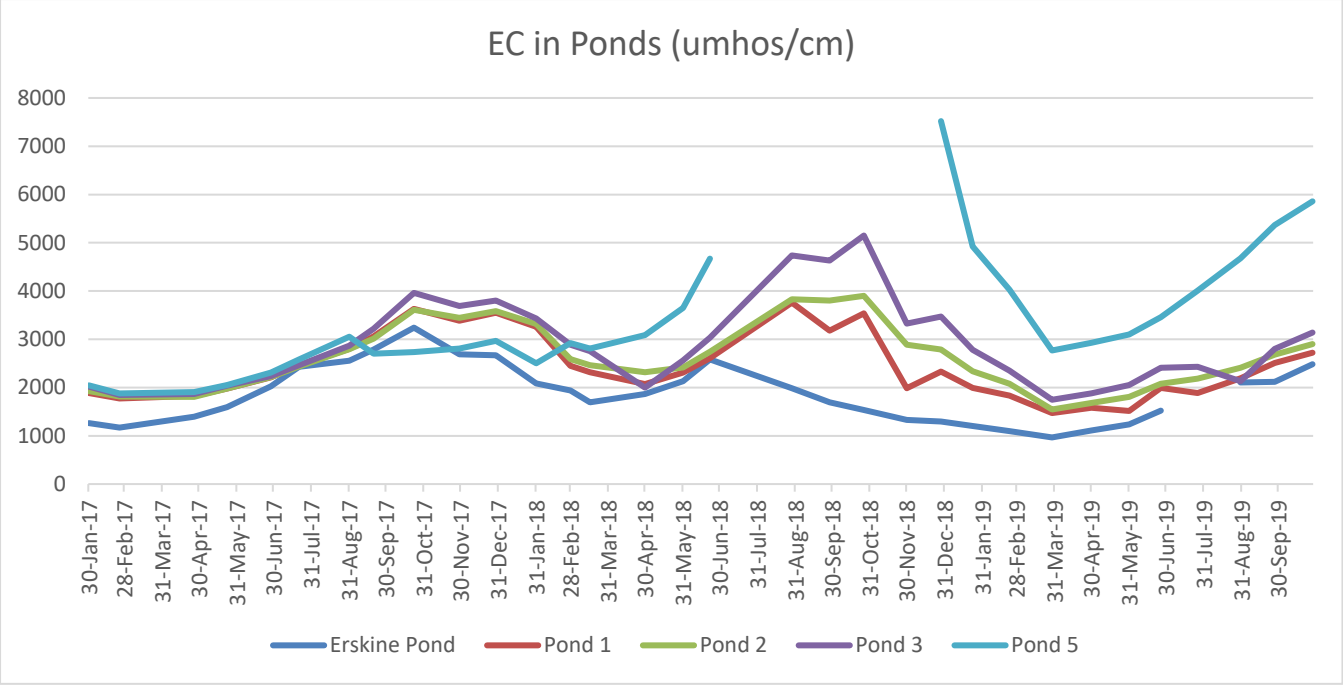
1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

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

3. The Discharger's pond monitoring data indicate that salt is concentrated in the algae production ponds as shown in the following Figure F-3. Wastewater is typically discharged first to the Erskine Pond, which is then distributed to the algae production ponds in series beginning with Pond 1, then Pond 2, Pond 3, etc. The Discharger's July 2008 technical report titled "Hydrogeologic Evaluation Report", prepared by Eco:Logic (now Stantec) states the following:

> "Average concentrations of salts in WWTF [Facility] pond samples were generally higher than at background groundwater monitoring locations, providing an indication that the percolation of pond water may impact groundwater quality above background conditions, with regards to salt. Similarly, groundwater monitoring locations adjacent to or downgradient of the WWTF [Facility] generally had salts reported at higher concentration than background observation locations."

Figure F-3. EC Concentrations in Ponds



4. The Discharger's groundwater monitoring data indicate that groundwater concentrations for EC, TDS, TKN, and nitrate are elevated in downgradient monitoring wells as represented by MW-6 and as compared to the upgradient well, MW-1. See the following Figures F-4 through F-7.

Figure F-4. EC Trend in Groundwater

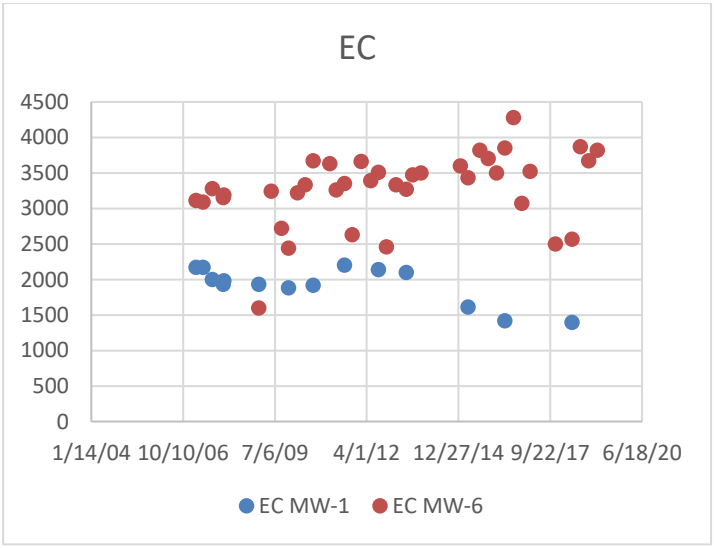


Figure F-5. TDS Trend in Groundwater

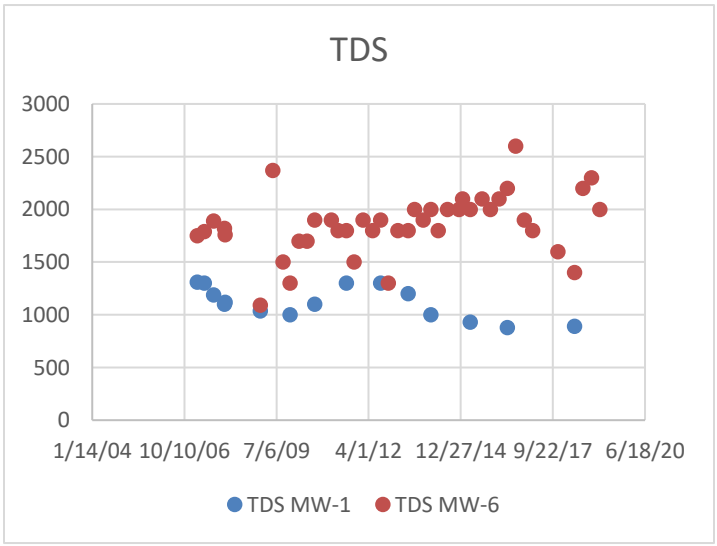


Figure F-6. TKN Trend in Groundwater

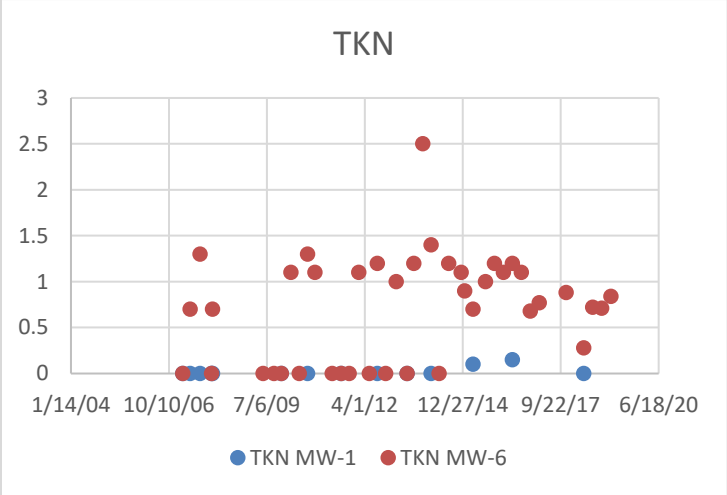
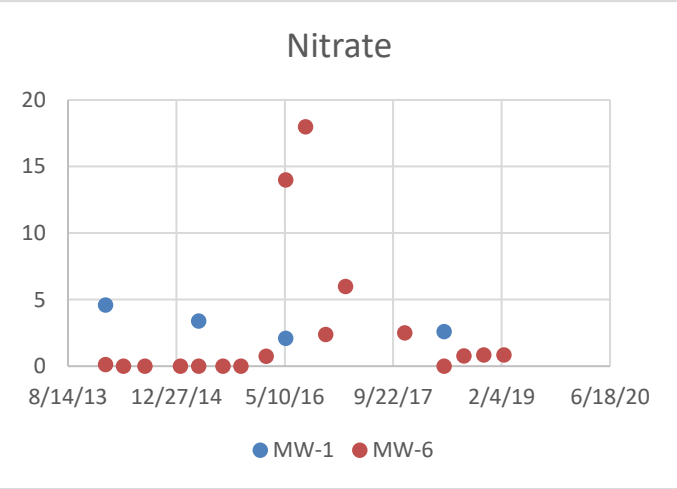


Figure F-7. Nitrate Trend in Groundwater



5. This Order requires continued groundwater monitoring and contains groundwater limitations for electrical conductivity (EC), nitrate, and total coliform organisms. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater, including municipal, domestic, and agricultural uses. Further discussion of the groundwater limitations follows:

   i. **Electrical Conductivity (EC)**, which was found to be present in the wastewater at an average concentration of 1092 mg/L, has the potential to degrade groundwater quality at this site because of the shallow groundwater in the vicinity of the algae production ponds.

   The State Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Central Valley Water Board is considering limiting effluent salinity of municipal wastewater treatment plants to an increment of 500 µmhos/cm over the salinity of the municipal water supply as representing BPTC. This Order includes a final effluent limitation of 1250 µmhos/cm for EC based on BPTC.

   The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. This Order contains a reopener to amend or modify the final effluent limitation for EC if Basin Plan amendments make it necessary.

   ii. **Nitrate**, which was found to be present in the wastewater at an average concentration of up to 5.7 mg/L as nitrogen and a maximum

concentration of 23 mg/L, has the potential to degrade groundwater quality because of the shallow groundwater in the vicinity of the algae production ponds. Furthermore, groundwater monitoring data show nitrate concentrations above the primary MCL of 10 mg/L in monitoring well MW-6. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California primary MCL for nitrate is equivalent to 10 mg/L as nitrogen, and groundwater beneath the facility is designated as municipal or domestic supply. It is therefore appropriate to adopt a numerical groundwater limitation of 10 mg/L for nitrate as nitrogen to implement the Chemical Constituents objective to protect the municipal and domestic use of groundwater.

iii. **Total Coliform Organisms**, 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. Total Coliform Organisms have the ability to degrade groundwater quality at this site because of the shallow groundwater in the vicinity of the algae production ponds. The Basin Plan water quality objective for water designated for municipal usage is <2.2 MPN/100mL. It is therefore appropriate to adopt a numerical groundwater limitation of <2.2 MPN/100mLfor total coliform organisms to implement the Basin Plan water quality objective to protect the municipal and domestic use of groundwater.

6. Based on the available groundwater data and the analysis of concentrations in the discharges that can migrate to groundwater from the ponds, this Order requires that the Discharger assess background groundwater conditions and conduct a Groundwater Antidegradation Analysis and BPTC Evaluation for Groundwater Protection. This Order contains a Compliance Schedule in section VI.C.7 for Pond Effluent Limitations and Groundwater Limitations.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal

conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. Phase 1 has been completed. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. The start of Phase 2 and the final compliance date are uncertain at the time this Order was adopted. This Order may be reopened to address changes to the Delta Mercury Control Program.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations.

d. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** The Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting. These programs, once effective, could change how the Central Valley Water Board permits discharges of salt and nitrate. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. This Order may be amended or modified to incorporate any newly-applicable requirements.

2. **Special Studies and Additional Monitoring Requirements**

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at section 3.1.20.) Based on whole effluent chronic toxicity testing performed by the Discharger from 1 January 2017 through 30 April 2019, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring to demonstrate compliance with the Basin Plan's narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger of 1 TUc for *C. dubia* and *P. promelas* or 2 TUc for *S. capricornutum*, this provision requires the Discharger to either participate in an approved Toxicity Evaluation Study (TES) or conduct a site-specific Toxicity Reduction Evaluation (TRE). See Provision VI.C.2.a for a complete description of the chronic toxicity monitoring triggers.

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent for *C. dubia* and *P. promelas* or if the percent effect at 50 percent effluent is less than or equal to 50 percent for *S. capricornutum*. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low-level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, the Central Valley Clean Water Association (CVCWA), in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Charts (Figures F-7 and F-8), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Work Plan 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-8: *Ceriodaphnia dubia* and *Pimephales promelas* Monitoring Flow Chart

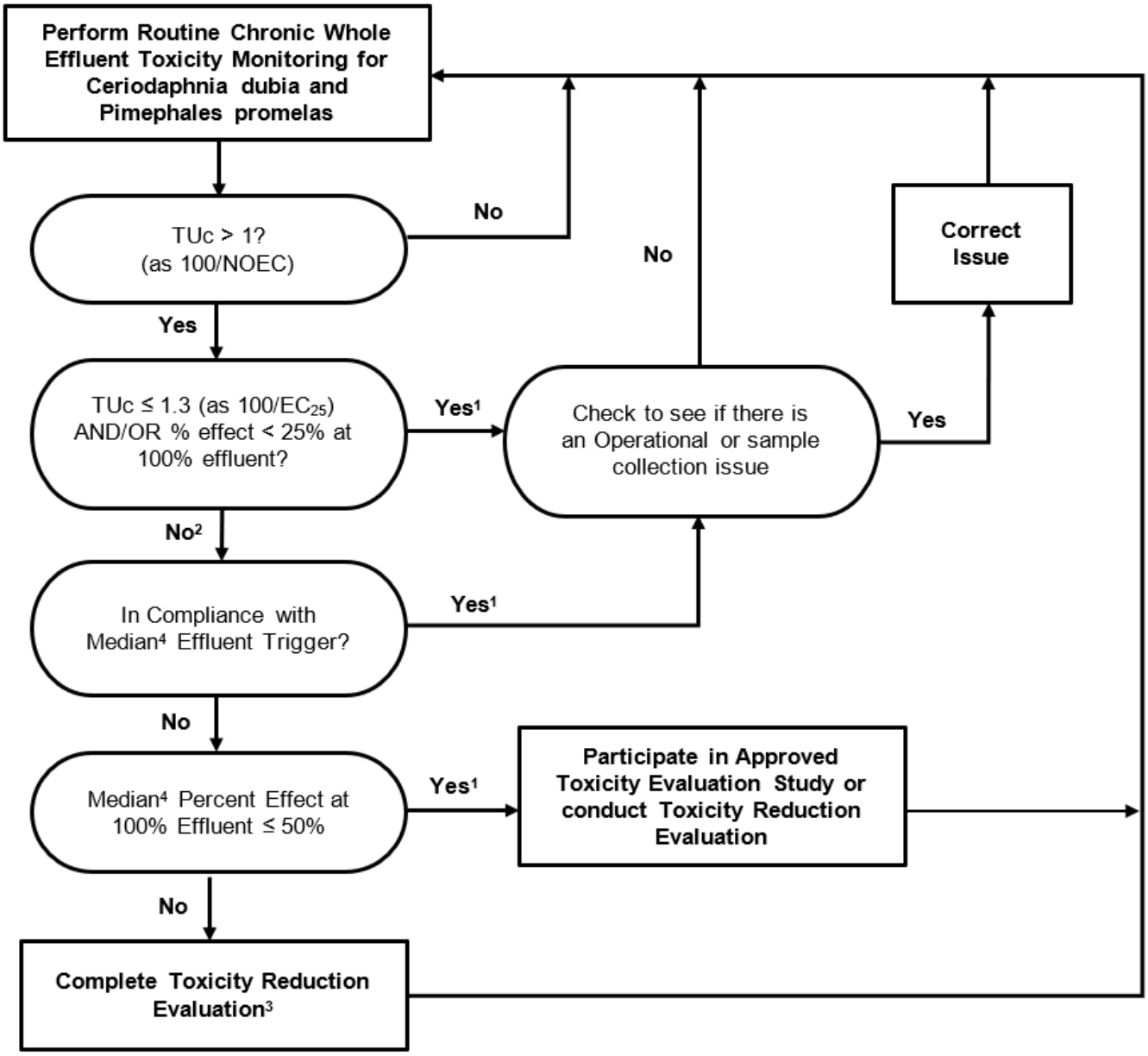


Figure F-8 Notes:

1. The Discharger may participate in an approved TES if the discharge has exceeded a chronic toxicity monitoring trigger twice or more in the past 12-month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.
3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
4. See Compliance Determination section VII.L for procedures for calculating 6-week median.

Figure F-9: *Selenastrum capricornutum* Monitoring Flow Chart

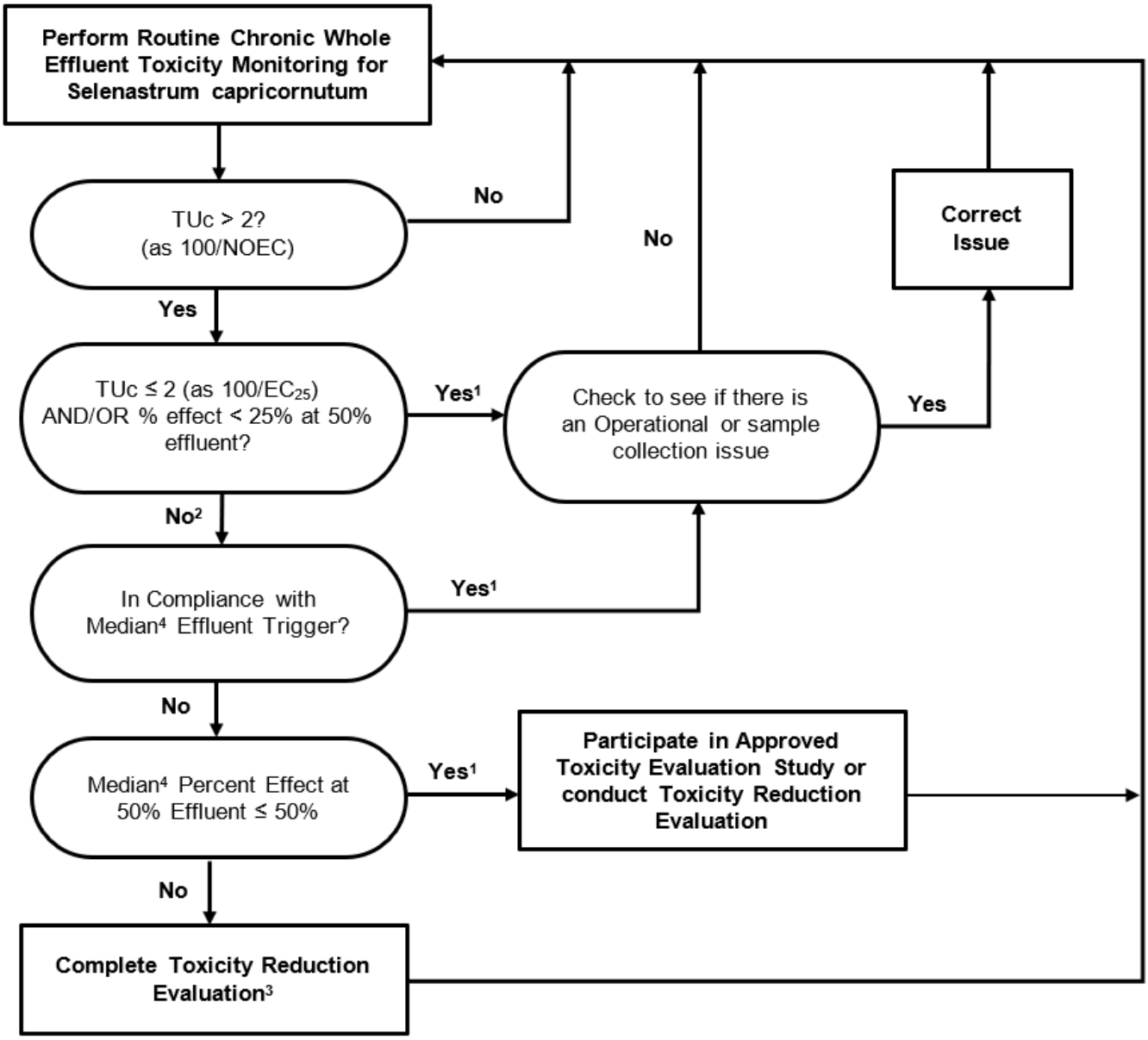


Figure F-9 Notes:

1. The Discharger may participate in an approved TES if the discharge has exceeded a chronic toxicity monitoring trigger twice or more in the past 12-month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.
3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
4. See Compliance Determination section VII.L for procedures for calculating 6-week median.

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

   a. **Pollution Prevention Plan for Mercury**. The Discharger submitted a Pollution Prevention Plan for Mercury, on 25 July 2015 in accordance with Water Code section 13263.3(d)(3). Progress Reports are submitted annually per the Technical Reports Table in the MRP.

   b. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement the existing salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility. The Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the Report of Waste Discharge per the Technical Reports Table in the MRP.

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

   a. **Filtration System Operating Specifications.** The filtration system consists of cloth media filtration with 5 nanometer pore size, which has a filter capability comparable to granular media. Cloth media filtration is not necessarily membrane filtration, which generally has a much smaller pore size; in the micron range. Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU. The turbidity monitoring location is FIL-001. See Section VI.C.4.a. of Operating Specifications.

   b. **Ultraviolet (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement. The total coliform organism monitoring location is UVS-002.

This Order requires that the UV disinfection system be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water. In addition, the UV disinfection system must be operated as specified in the Discharger's June 2015 site-specific Title 22 Engineering Report including the specifications in Appendix P of the Title 22 Engineering Report.

c. **Algae Production Ponds and Emergency Flow Equalization Pond Operating Requirements.** This Order requires the operation and maintenance of the ponds to be conducted in a manner that prevents flooding and reduces nuisances. See Section VI.C.4.c. of Operating Specifications.

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

a. Pretreatment Requirements.

i. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.

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

iii. The Discharger has an approved pretreatment program. The Discharger's pretreatment program includes two noncategorical significant industrial users (SIU's) and approximately 170 other noncategorical nondomestic users (e.g., food service establishments and automotive maintenance facilities). The SIU's include PGP International, which makes food products from grain, and Woodland Biomass Power, Ltd., a cogeneration plant.

b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this Order means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil

amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. part 503. This Order does not regulate offsite use or disposal of biosolids, which are regulated instead under 40 C.F.R. part 503; administered by U.S. EPA. The Sludge/Biosolids Treatment or Discharge Specifications in this Order implement the California Water Code to ensure sludge/biosolids are properly handled onsite to prevent nuisance, protect public health, and protect groundwater quality.

6. **Other Special Provisions**

a. 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**

In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 C.F.R. section 122.44(d). There are exceptions to this general rule. The State Water Board's Resolution 2008-0025 "Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits" (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

a. **Compliance Schedule for Pond Effluent Limitations and Groundwater Limitations.** This Order requires compliance with the pond discharge effluent and groundwater limitations by **31 May 2029**. Monitoring shows that EC, TDS, TKN, and total nitrate concentrations are increased in wells downgradient of the Facility when compared to wells upgradient of the Facility. This Order requires submittal of a report containing a groundwater antidegradation analysis and analyzing each facility component (including the algae production ponds and emergency flow equalization pond) with respect to BPTC and minimizing the discharge's impact on groundwater quality. The Discharger shall submit the technical reports in accordance with the time schedule in the Technical Reports Table in the MRP, Attachment E, section X.D.4 to evaluate groundwater and ensure compliance with the land discharge effluent and groundwater limitations.

i. **Groundwater Background Characterization**. After one year of monitoring all existing and any newly installed monitoring wells, the Discharger shall characterize current background quality of monitored constituents in a technical report. For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program (Attachment E, Section VIII.G), 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 four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration.

ii. **Groundwater Antidegradation Analysis and Best Practical Treatment or Control (BPTC) Evaluation for Groundwater Protection.** The Discharger shall conduct a groundwater antidegradation analysis and analyze each facility component (including the algae production ponds and emergency flow equalization pond) with respect to BPTC and minimizing the discharge's impact on groundwater quality.

iii. **Assessment of Alternatives, Selection of Preferred Alternative, and Work Plan to implement Selected Alternative for Compliance with Pond Discharge Effluent and Groundwater Limitations.** The Discharger shall assess alternatives to comply with pond discharge effluent limitations and groundwater limitations and submit the results with a work plan and schedule to implement the selected alternative. The options provided under the Basin Plan's Salinity Control Program should be considered in development of the work plan and schedule for implementation of BPTC by the final compliance date of 31 May 2029. This Order may be reopened or re-evaluated at the next permit renewal to modify the compliance schedule or permitting requirements considering new information provided through the Discharger's reports discussed above and the options available under the Salinity Control Program. Annual progress reports shall be submitted until final compliance is achieved and the Central Valley Water Board has been notified of completion of construction, as necessary, and final compliance.

b. **Compliance Schedule for Methylmercury.** Delta Mercury Control Program is composed of two phases. Phase 1 is currently underway and continues through the Phase 1 Delta Mercury Control Program Review. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim

mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetlands, and open-water habitats; and reducing total mercury loading to the San Francisco Bay, as required by the Water Quality Control Plan for the San Francisco Bay. As part of Phase 1, the CVCWA Coordinated Methylmercury Control Study Work Plan was approved by the Executive Officer on 7 November 2013. The final CVCWA Methylmercury Control Study was submitted to the Central Valley Water Board on 19 October 2018 and revised on 26 October 2018.

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

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

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

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

The Discharger submitted a Pollution Prevention Plan for Mercury, on 25 July 2015 in accordance with Water Code section 13263.3(d)(3). Progress Reports are submitted annually per the Technical Reports Table in the MRP. The Discharger shall maintain compliance with an interim limitation for total mercury at Discharge Point 001 with compliance measured at Monitoring Location EFF-001. The effluent calendar year annual total mercury load shall not exceed 481 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (Section IV.A.2.a) until 30 December 2030.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

Water Code section 13176, subdivision (a)(1) requires that laboratory analyses shall be performed by laboratories accredited by the State Water Resources Control Board, Division of Drinking Water, which accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP). Data generated using field tests are exempt from this requirement pursuant to Water Code Section 13176, subdivision (a)(2).

The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state

requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies for concentrations of BOD_5 and TSS have been retained from Order R5-2014-0120-01. The monitoring frequencies for mass of BOD_5 and TSS have been discontinued.

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 pH, mercury, ammonia, chlorpyrifos and diazinon, EC, hardness, nitrate, temperature, total coliform organisms, TDS, turbidity, acute toxicity, chronic toxicity, priority pollutants and other constituents of concern, and concentration monitoring for BOD_5 and TSS have been retained from Order R5-2014-0120-01 to determine compliance with effluent limitations for these parameters. Monitoring for mass of selenium, ammonia, BOD_5 and TSS has been discontinued. Monitoring for selenium and methylmercury has been reduced. New monitoring for dissolved organic carbon is required.

3. This Order includes effluent limitations for methylmercury, diazinon, and chlorpyrifos based on the applicable TMDLs for the Sacramento-San Joaquin Delta. This Order requires monthly monitoring for methylmercury and annual monitoring for diazinon and chlorpyrifos to characterize their presence in the effluent and determine compliance with the applicable effluent limitations based on the TMDL.

4. 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 quarterly during the year 2021,

5. Monitoring data collected over the previous permit term for bis (2-ethylhexyl) phthalate, boron, and chlorine did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2014-0120-01.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity**. Quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity**. Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

   The most sensitive species to be used for chronic toxicity testing was determined in accordance with the process outlined in the MRP, section V.E.2. Based on chronic toxicity data collected from January 2016 through April 2019, the species that exhibited the maximum chronic toxicity result was the water flea (*Ceriodaphnia dubia*), with multiple results of 8 TUc and percent effects greater than 25%; however, it was determined that pathogen interference was responsible for the toxicity results. With the continued pathogen interference and no significant toxic effects reported for the other two species, this Order establishes *Ceriodaphnia dubia* as the most sensitive species for chronic WET testing.

D. Receiving Water Monitoring

1. **Surface Water**

   a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

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

   The Discharger is required to participate in the Delta Regional Monitoring Program. Delta Regional Monitoring Program data is not intended to be used directly to represent either upstream or downstream water quality for purposes of determining compliance with this Order. Delta Regional Monitoring Program monitoring stations are established generally as "integrator sites" to evaluate the combined impacts on water quality of

multiple discharges into the Delta; Delta Regional Monitoring Program monitoring stations would not normally be able to identify the source of any specific constituent but would be used to identify water quality issues needing further evaluation. Delta Regional Monitoring Program monitoring data may be used to help establish background receiving water quality for an RPA in an NPDES permit after evaluation of the applicability of the data for that purpose. In general, monitoring data from samples collected in the immediate vicinity of the discharge will be given greater weight in permitting decisions than receiving water monitoring data collected at greater distances from the discharge point. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in conjunction with other information, such as other receiving water monitoring data, spatial and temporal distribution and trends of receiving water data, effluent data from the Discharger's discharge and other point and non-point source discharges, receiving water flow volume, speed and direction, and other information to determine the likely source or sources of a constituent that resulted in exceedance of a receiving water quality objective.

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

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

c. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires receiving water monitoring for priority pollutants and other constituents of concern twice during the year 2021 at Monitoring Location RSW-001 in order to collect data to conduct an RPA for the next permit renewal. Monitoring for pH, DO, EC, and hardness is included in the list of constituents of concern.

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 the State Anti-Degradation Policy. 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 the State Anti-Degradation Policy and the Basin Plan.

c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached 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 the State Anti-Degradation Policy. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the pretreatment requirements contained in 40 C.F.R. part 403 and implemented in section VI.C.5.a. of this Order. Biosolids monitoring is required per U.S. EPA guidance to evaluate the effectiveness of the pretreatment program. Biosolids monitoring for compliance with 40 C.F.R. part 503 regulations is not included in this Order since it is a program administered by U.S. EPA's part 503 Biosolids Program

(https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws)

2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

3. UV Disinfection System Monitoring

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

4. Algae Production Ponds and Emergency Flow Equalization Pond Monitoring

Monitoring of the Algae Production Ponds and Emergency Flow Equalization Pond is required to ensure proper operation of the ponds. Monthly monitoring for freeboard, electrical conductivity, color, odor, and levee condition has been retained from Order R5-2014-0120-01. Monitoring for pH, temperature, nitrate and DO are new requirements in this Order.

5. Pond Discharge Monitoring

Pond discharge monitoring is required to ensure that the discharge to the emergency storage and algae production ponds complies with the Algae Production Ponds and Emergency Flow Equalization Pond Operating Specifications in section VI.C.4.c of this Order. Monitoring frequencies and sample types for flow (continuous), pH (weekly), EC (weekly), BOD_5 (weekly)

nitrate (weekly), and total coliform organisms (weekly) are new requirements in this Order.

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

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

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the City of Woodland Water Pollution Control Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following though posting on the Central Valley Water Board's website (https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/).

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

B. Written Comments

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

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on 16 March 2020.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: **16/17 April 2020**
Time: **8:30 a.m.**
Location: Online

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

D. Reconsideration of Waste Discharge Requirements

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

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

Or by email at waterqualitypetitions@waterboards.ca.gov

Instructions on how to file a petition for review (http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml) are available on the Internet.

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (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 Elizabeth A. Thayer at (916) 464-4671.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	RP
Aluminum	µg/L	590	1600	200	750	87	--	--	--	200	No
Bis(2-Ethylhexyl) Phthalate	µg/L	ND	--	--	--	--	1.8	5.9	--	4	No
Boron	µg/L	66	--	--	--	--	--	--	--	1500	No
Chlorine Residual	µg/L	ND	--	11	11	19	--	--	--	--	No
Chlorpyrifos and Diazinon	µg/L	0.057 J	--	--	--	--	--	--	TMDL	--	Yes
Electrical Conductivity @ 25°C	µmhos/cm	1092	--	1400	--	--	--	--	--	--	No
Endrin Aldehyde	µg/L	0.0067 J	--	--	--	--	--	--	ND	--	No
Hardness-Dependent Metals	µg/L	Various	--	--	--	--	Various	Various	--	--	No
Mercury	ng/L	ND	--	--	--	--	--	--	TMDL	--	No
Methylmercury	ng/L	0.04 J	--	--	--	--	--	--	TMDL	--	Yes
Nitrate	mg/L	23	--	--	--	--	--	--	--	--	No
Selenium	µg/L	2.7	5.5	5	20	5	--	--	--	50	Yes

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

Abbreviations used in Attachment G:

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
RP = Reasonable Potential

ATTACHMENT H – CALCULATION OF WQBEL'S

AQUATIC LIFE WQBEL'S CALCULATIONS

Parameter	Units	CMC Criteria	CCC Criteria	B	Effluent CV[i]	CMC Dilution Factor	CCC Dilution Factor	ECA Multi acute	LTA acute	ECA Multi chronic	LTA chronic	AMEL Multi$_{95}$	AWEL Multi	MDEL Multi$_{99}$	AMEL [ii]	AWEL [iii]	MDEL [iv]
Ammonia, Total (as N)	mg/L	2.14	1.45	ND	0.60	0	0	0.32	0.7	1.45	1.1	1.55	2.68	--	1.1	1.9	--
Selenium, Total Recoverable	µg/L	20	5	5.5	0.44	0	0	0.41	8.2	0.61	3.1	1.4	--	2.5	4.0	--	8.0

Abbreviations used in this table:

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
CV = Coefficient of Variation (established in accordance with section 1.4 of the SIP)
ECA = Effluent Concentration Allowance
LTA = Aquatic Life Calculations – Long-Term Average
MDEL = Maximum Daily Effluent Limitation
AMEL = Average Monthly Effluent Limitation
AWEL = Average Weekly Effluent Limitation
MULTI - Multiplier

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[i] Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

[ii] Average Monthly Effluent Limitations are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.

[iii] Average Weekly Effluent Limitations are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.

[iv] Maximum Daily Effluent Limitations are calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.