CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • Fax (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER R5-2018-0086
NPDES NO. CA0079049

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF DAVIS WASTEWATER TREATMENT PLANT 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 Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA 95616
	Yolo County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Tertiary Treated Effluent	38° 35' 24" N	121° 39' 50" W	Willow Slough Bypass
002	Tertiary Treated Effluent	38° 34' 33" N	121° 38' 02" W	Conaway Ranch Toe Drain

Table 3. Administrative Information

This Order was adopted on:	**7 December 2018**
This Order shall become effective on:	**1 February 2019**
This Order shall expire on:	**31 January 2024**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**31 January 2023**
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Major

I, 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 7 December 2018.

Original Signed by

PATRICK PULUPA, Executive Officer

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TABLES

ATTACHMENTS

I. FACILITY INFORMATION

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

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

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

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

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

E. Notification of Interested 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.

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

THEREFORE, IT IS HEREBY ORDERED that Waste Discharge Requirements Order R5-2013-0127-01 and Time Schedule Orders R5-2013-0128 and R5-2014-0159 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 Order.

III. DISCHARGE PROHIBITIONS

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

B. The bypass 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 (CCR), Title 22, section 66261.1 et seq., is prohibited.

E. Average Dry Weather Flow. Discharges exceeding a combined total average dry weather flow of 7.5 million gallons per day (MGD) at Discharge Points 001 and 002 are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001 and 002

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 MRP, Attachment E:

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

Table 4. Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	--	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L[1]	1.3	1.9	--	--	--
	mg/L[2]	1.9	3.8	--	--	--
	lbs/day[1,3]	81	120	--	--	--
	lbs/day[2,3]	120	240	--	--	--

1 Applicable for discharges from 1 March through 31 October.
2 Applicable for discharges from 1 November through 29 February.
3 Based on an average dry weather flow of 7.5 MGD.

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

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

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

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

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

Compliance shall be determined at Monitoring Location EFF-001, as described in the MRP, Attachment E.

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

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

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

g. **Diazinon and Chlorpyrifos**

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

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

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

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

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

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

h. **Mercury, Total.** For a calendar year, the total annual mass discharge of total mercury shall not exceed 0.46 pounds/year.

2. Final Effluent Limitations – Discharge Point 002

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 002. Unless otherwise specified, compliance shall be measured at Monitoring Location EFF-002, as described in the MRP, Attachment E:

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 5:

Table 5. Effluent Limitations – Discharge Point 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)[1]	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids[1]	mg/L	10	15	--	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L[3]	1.5	3.9	--	--	--
	mg/L[4]	2.3	4.9	--	--	--
	lbs/day[2,3]	94	240	--	--	--
	lbs/day[2,4]	140	310	--	--	--

1 Compliance shall be measured at Monitoring Location EFF-001, as described in the MRP, Attachment E.
2 Based on an average dry weather flow of 7.5 MGD.
3 Applicable for discharges from 1 March through 31 October.
4 Applicable for discharges from 1 November through 29 February.

b. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent. Compliance shall be measured at Monitoring Location EFF-001, as described in the MRP, Attachment E.

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

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

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

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

Compliance shall be measured at Monitoring Location EFF-001, as described in the MRP, Attachment E.

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

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

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

g. **Diazinon and Chlorpyrifos**

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

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

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

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

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

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

h. **Methylmercury. Effective 31 December 2030**, the effluent calendar year annual methylmercury load shall not exceed 0.17 grams, in accordance with the Delta Mercury Control Program.

3. Interim Effluent Limitations – Discharge Point 002

The Discharger shall maintain compliance with the following interim effluent limitations at Discharge Point 002, with compliance measured at Monitoring Location EFF-002 as described in the MRP, Attachment E.

a. **Mercury, Total. Effective immediately and until 30 December 2030**, the effluent calendar year annual total mercury load shall not exceed 75 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury at Discharge Point 002 (section IV.A.2.h).

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Willow Slough Bypass or the Conaway Ranch Toe Drain:

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 95th 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 68-16 and 40 C.F.R. section 131.12);
    e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
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. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
15. **Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations

RSW-001U and RSW-001D when discharging at Discharge Point 001 and at Monitoring Locations RSW-002U and RSW-002D when discharging at Discharge Point 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 NTU;

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

    d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTU; and

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

B. Groundwater Limitations

1. Release of waste constituents from any storage, treatment, or disposal component associated with the Facility, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents greater than background quality or water quality objectives, whichever is greater.

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:

        v. *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.

vi. *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.

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

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

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

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

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

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

ii. Controls any pollutant limited in the Order.

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

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

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

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

h. A copy of this Order shall be maintained at the 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 that it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

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

shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with CCR, Title 16, 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.

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.

o. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from the 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.

p. 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 non-compliance, and shall confirm this notification in writing within 5 days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of non-compliance, and shall describe the measures being taken to remedy the current non-compliance and prevent recurrence

including, where applicable, a schedule of implementation. Other non-compliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

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

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

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

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity (WET), 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. **Chemical Oxygen Demand/BOD_5 Ratio.** This Order requires compliance monitoring for BOD_5 at 20°C using analytical methods in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or State Water Board. If the Discharger performs studies to determine a ratio for chemical oxygen demand to BOD_5 at 20°C, this Order may be reopened to modify the MRP and compliance determination for BOD_5 at 20°C.

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

e. **Whole Effluent Toxicity (WET).** 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) or, under certain circumstances, the Discharger may be allowed to participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific 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 and/or TES.

f. **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, with the exceptions of copper, lead, and nickel, for which site-specific dissolved-to-total metal translators have been used. If the Discharger performs studies to determine site-specific

WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

g. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board approved Basin Plan amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the amendments would impose certain new requirements on salt and nitrate discharges. More information regarding these amendments can be found at the following link:

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

If the amendments ultimately go into effect, 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 (TRE) 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 Special Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a step-wise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of WET, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions, as described below, the Discharger may participate in an approved TES in lieu of conducting a site-specific TRE.

i. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger is 1 TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection iii, below.

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

(a) **Initial Toxicity Check**. If the result is less than or equal to 1.3 TUc (as $100/EC_{25}$) AND the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring.[1] 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. If the 6-week median is greater than 1.3 TUc (as $100/EC_{25}$) and the percent effect of the sampling event with the median TUc is greater than 25 percent at 100 percent effluent, proceed with subsection (c).

[1] The Discharger may participate in an approved TES if the chronic toxicity effluent limitation is exceeded twice or more in the past 12-month period and the cause is not identified and/or addressed.

Otherwise, the Discharger shall check for any operation or sample collection issues and return to routine chronic toxicity monitoring.

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

(e) **Toxicity Reduction Evaluation (TRE).** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:

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

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

b. **Phase 1 Methylmercury Control Study.** In accordance with the Basin Plan's Delta Mercury Control Program and the compliance schedule included in this Order for methylmercury (section VI.C.7.a), the Discharger shall continue to participate in the Central Valley Clean Water Association (CVCWA) Coordinated Methylmercury Control Study (Methylmercury Control Study) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve the methylmercury waste load allocation (WLA). The final CVCWA Methylmercury Control Study was submitted to the Central Valley Water Board on 19 October 2018. The Discharger shall implement the implementation plan and schedule proposed in the final study to comply with methylmercury allocations as soon as possible.

c. **Dissolved-to-Total Metal Translators Verification Work Plan and Time Schedule.** The Discharger shall prepare and submit a Work Plan and Schedule documenting the steps with milestone dates to evaluate the need for site-specific metals translators for copper, lead, and/or nickel to verify that the site-specific

metals translator(s) continue to be representative of the effluent discharged from the Facility. The Discharger shall comply with the schedule in the Technical Reports Table to complete the verification study.

d. **Dissolved-to-Total Metal Translators Verification Study.** The Discharger shall prepare and submit a Verification Study for copper, lead, and/or nickel, after Executive Officer approval of the Work Plan and Schedule, to verify that the site-specific metal translator(s) continue to be representative of the effluent discharged from the Facility. The verification study shall evaluate the need to revise metal translators for copper, lead, and/or nickel and the characteristics of the effluent used in the Discharger's January 2007 *Metals Translator Monitoring Study – Copper, Lead, and Nickel* (Translator Study) in comparison to the current characteristics of the effluent following completion of Facility upgrades. If the study determines that the site-specific dissolved-to-total metal translators developed in the January 2007 Translator Study are not representative of the current effluent characteristics, the Discharger shall conduct a new study using U.S. EPA guidance to determine site-specific translators for copper, lead, and/or nickel that are representative of the current effluent characteristics. The Central Valley Water Board will evaluate the results of the studies and reopen the permit, as necessary, to revise the applicable water quality objectives. The Discharger shall comply with the schedule in the Technical Reports Table to complete the verification study.

3. Best Management Practices and Pollution Prevention

a. **Pollution Prevention Plan for Mercury (PPP).** The Discharger shall continue to implement a pollution prevention plan for mercury in accordance with Water Code section 13263.3(d)(3), per the compliance schedule in this Order for methylmercury (section VI.C.7.a). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet (Attachment F, section VI.B.3.a). Progress reports shall be submitted in accordance with the MRP (Attachment E, Table E-12). 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.

b. **Mercury Exposure Reduction Program (MERP).** The Discharger shall participate in a MERP in accordance with the Basin Plan's Delta Mercury Control Program. The Discharger elected to provide financial support in the collective MERP with other Delta dischargers rather than be individually responsible for any MERP activities. An exposure reduction work plan for Executive Officer approval was submitted on 20 October 2013. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the MERP objective, elements, and the Discharger's coordination with other stakeholders. The minimum requirements for the exposure reduction work plan are outlined in the Fact Sheet (Attachment F, section VI.B.3.b). The Discharger shall continue to participate in the group effort to implement the work plan through 2020 or until they comply with all requirements related to the individual or subarea methylmercury allocation. The Discharger shall notify the Central Valley Water Board if it plans to perform mercury exposure reduction activities individually.

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

If the total effluent annual average calendar year electrical conductivity concentration exceeds 1,100 µmhos/cm during the term of this Order based on monitoring data collected at Monitoring Location EFF-001, the Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the ROWD, due 1 year prior to the expiration date of this Order.

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.

5. Special Provisions for Publicly-Owned Treatment Works (POTW's)

a. **Pretreatment Requirements**

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. part 403, including any subsequent regulatory revisions to 40 C.F.R. part 403. Where 40 C.F.R. part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 C.F.R. part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by U.S. EPA or other appropriate parties, as provided in the CWA. U.S. EPA may initiate enforcement action against a non-domestic user for non-compliance 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 non-domestic 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 non-domestic user, upon commencement of the discharge.

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

(a) Implement the necessary legal authorities as provided in 40 C.F.R. section 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 C.F.R. section 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 MRP, section X.D.4 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 Facility. 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 WDR's 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 MRP, Attachment E.

iv. The on-site 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 on-site treatment, processing, or storage of sludge/biosolids shall be reported to the Executive Officer at least **90 days** in advance of the change, and shall not be implemented until written approval by the Executive Officer.

c. **Continuous Monitoring Systems.** This Order, and the MRP which is a part of this Order, requires that certain parameters be monitored on a continuous basis. The Facility is not staffed on a full-time basis. Permit violations or system upsets can go undetected during this period. The Discharger shall establish an electronic system for operator notification for continuous recording device alarms. For existing

continuous monitoring systems, the electronic notification system shall be installed prior to initiating the discharge to surface water. For systems installed following permit adoption, the notification system shall be installed simultaneously.

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, Title 22, or equivalent.

7. Compliance Schedules

a. **Compliance Schedules for Final Effluent Limitations for Methylmercury.** This Order requires compliance with the final effluent limitations for methylmercury by **31 December 2030**. The Discharger shall comply with the time schedule shown in Table E-12 to ensure compliance with the final effluent limitations for methylmercury.

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a, IV.A.1.b, IV.A.2.a, and IV.A.2.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Waste Discharge Requirements sections IV.A.1.a and IV.A.2.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Waste Discharge Requirements sections IV.A.1.b and IV.A.2.b for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Total Mass Loading Effluent Limitations for Methylmercury and Total Mercury (Sections IV.A.1.h, IV.A.2.h, and IV.A.3.b). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual month shall be determined using an average of all concentration data collected that month and the corresponding total flow for that month. All effluent monitoring data collected under the MRP, 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 (ND) measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the ND contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

C. Average Dry Weather Flow Prohibition (Section III.F). 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 prohibition will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

D. Total Coliform Organisms Effluent Limitations (Sections IV.A.1.f and IV.A.2.f). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the

previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a MPN of 2.2 per 100 milliliters, the Discharger will be considered out of compliance. Calculation of the median is defined in Attachment A.

E. Total Residual Chlorine Effluent Limitations (Sections IV.A.1.d and IV.A.2.d). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

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

F. Mass Effluent Limitations. The mass effluent limitations contained in sections IV.A.1.a and IV.A.2.a are based on an average dry weather flow of 7.5 MGD and calculated as follows:

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

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Waste Discharge Requirements sections IV.A.1.a and IV.A.2.a shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

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

1. Dischargers shall be deemed out of compliance with an effluent limitation if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
    a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
    b. A sample result is reported as ND and the effluent limitation is less than the method detection limit (MDL).
3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

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

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

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

H. Chronic Whole Effluent Toxicity Effluent Limitation. (Section IV.A.2.e). Compliance with the TRE provisions of Provision IV.C.2.a shall constitute compliance with the effluent limitation.

I. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c). The Facility provides a high level of treatment including tertiary filtration and nitrification, which results in minimal dissolved oxygen impacts in the receiving water. Weekly receiving water monitoring for dissolved oxygen is required in the MRP (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this Order. Weekly receiving water monitoring data, measured at Monitoring Locations RSW-001U and RSW-001D for discharges at Discharge Point 001 and Monitoring Locations RSW-002U and RSW-002D for discharges at Discharge Point 002, will be used to determine compliance with part "c" of the dissolved oxygen receiving water limitations to ensure the discharge does not cause the dissolved oxygen concentrations in Willow Slough Bypass or the Conaway Ranch Toe Drain to be reduced below 7.0 mg/L at any time. However, should more frequent dissolved oxygen and temperature receiving water monitoring be conducted, Central Valley Water Board staff may evaluate compliance with parts "a" and "b".

J. Temperature Receiving Water Limitation (Section V.A.15). Compliance with the temperature receiving water limitation will be determined based on the difference in the temperature measured at Monitoring Location RSW-001U compared to the downstream temperature measured at Monitoring Location RSW-001D for discharges at Discharge Point 001, and the difference in the temperature measured at Monitoring Location RSW-002U compared to the downstream temperature measured at Monitoring Location RSW-002D for discharges at Discharge Point 002.

K. Turbidity Receiving Water Limitations (Section V.A.17.a-e). Compliance with the turbidity receiving water limitations will be determined based on the change in turbidity measured at Monitoring Location RSW-001U compared to the downstream turbidity measured at Monitoring Location RSW-001D for discharges at Discharge Point 001, and the change in turbidity measured at Monitoring Location RSW-002U compared to the downstream turbidity measured at Monitoring Location RSW-002D for discharges at Discharge Point 002.

L. Chlorpyrifos and Diazinon Effluent Limitations (Sections IV.A.1.g and IV.A.2.g). Compliance shall be determined by calculating the sum (S), as provided in this Order, with analytical results that are reported as ND concentrations to be considered to be zero.

M. Use of Delta Regional Monitoring Program and Other Receiving Water Data to Determine Compliance with Receiving Water Limitations. Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be

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

ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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:

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

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:

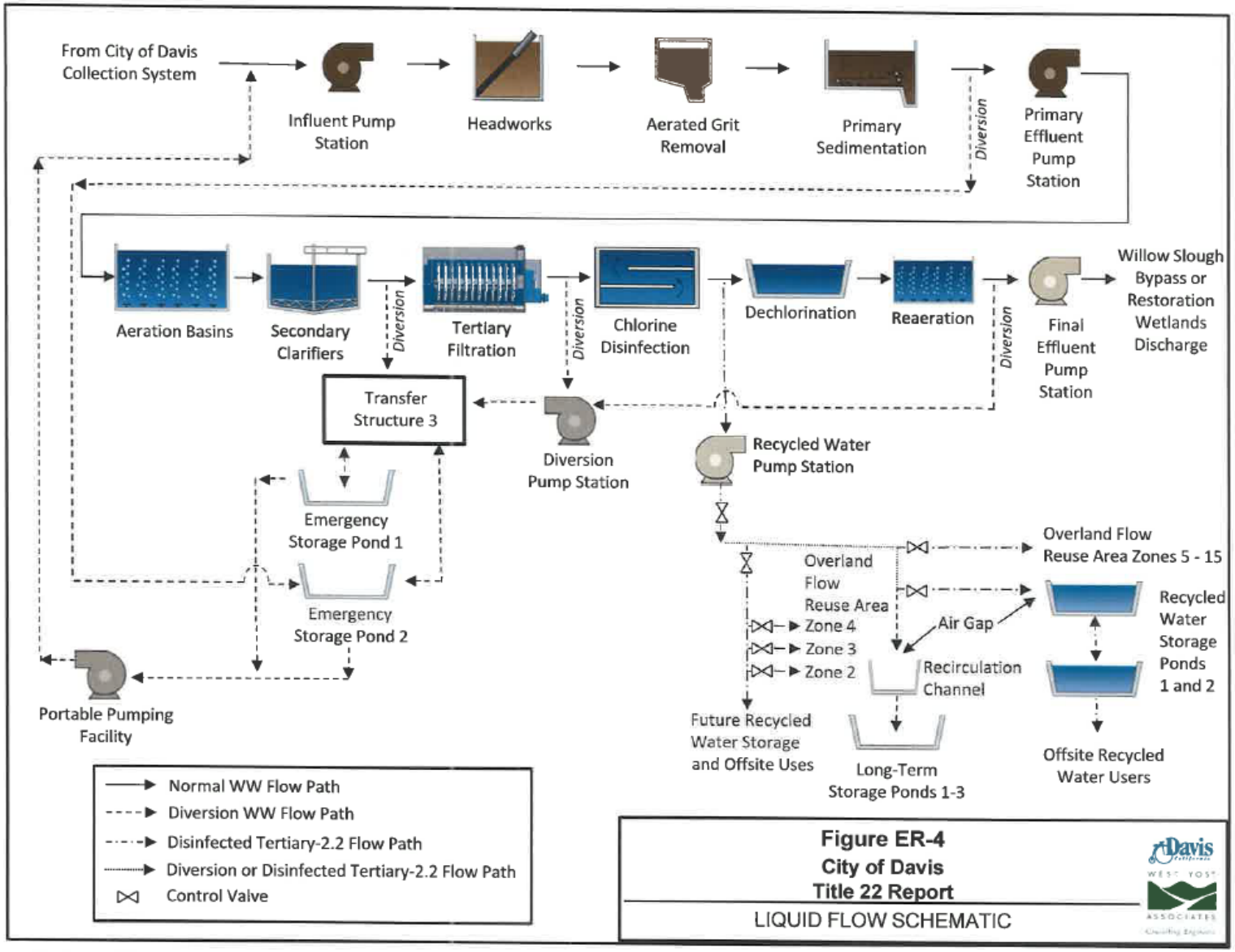
$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

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 step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP

ATTACHMENT C – 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 non-compliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385)

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

G. Bypass

1. Definitions
   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i))
   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii))
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2))
3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
   c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C))
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii))

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit 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. § 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. § 122.41(m)(3)(ii))

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for non-compliance 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 non-compliance was caused by upset, and before an action for non-compliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2))

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); 122.61)

III. STANDARD PROVISIONS – MONITORING

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

B. Monitoring 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. § 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. § 122.41(j)(2))

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi))

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

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2))

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. § 122.41(k))
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3))

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

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

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

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

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

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

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

6. Any person providing the electronic signature for such documents described in Standar 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 § 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. § 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. § 122.41(l)(4)(i))

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

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any non-compliance 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 non-compliance and its cause; the period of non-compliance, including exact dates and times, and if the non-compliance 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 non-compliance.

   For non-compliance 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 non-compliance 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. § 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. § 122.41(l)(1)):

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

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

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

G. Anticipated Non-compliance

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 non-compliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2))

H. Other Non-compliance

The Discharger shall report all instances of non-compliance 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 non-compliance 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. § 122.41(l)(7))

I. Other Information

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

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. § 122.41(l)(9))

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

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

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

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

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Contents

Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all National Pollutant Discharge Elimination System (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; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event an accredited laboratory is not available to the Discharger for any on-site field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine, such analyses performed by a non-accredited laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any on-site field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine must be kept on-site in the 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 non-compliance, shall be reported at intervals and in a manner specified in this MRP.

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

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

State Water Resources Control Board
Quality Assurance Program Officer
Office of Information Management and Analysis
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 MRP.

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

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location, after screening, where a representative sample of the influent into the Facility can be collected prior to entering into the treatment process.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected downstream from the last connection through which wastes can be admitted to the outfall before being discharged to Willow Slough Bypass.
002	EFF-002	A location where a representative sample of the effluent from the Facility can be collected downstream from the last connection through which wastes can be admitted to the outfall before being discharged to the Conaway Ranch Toe Drain.
--	RSW-001U	Willow Slough Bypass, approximately 200 feet upstream of Discharge Point 001.
--	RSW-001D	Willow Slough Bypass, approximately 200 feet downstream of Discharge Point 001.
--	RSW-002U	Conaway Ranch Toe Drain, approximately 30 feet upstream of Discharge Point 002.
--	RSW-002D	Conaway Ranch Toe Drain, approximately 375 feet downstream of Discharge Point 002.
--	RGW-002	Groundwater Monitoring Well 2
--	RGW-004	Groundwater Monitoring Well 4
--	RSW-008	Groundwater Monitoring Well 8
--	RGW-009	Groundwater Monitoring Well 9
--	FIL-001	A location where a representative sample of the effluent from the tertiary filtration system can be collected immediately downstream of the filters and prior to the chlorine disinfection system.
--	BIO-001	A composite of locations where representative samples of biosolids can be obtained.
--	SPL-001	A composite of locations where representative samples of the municipal water supply can be obtained.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	3/Week	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	3/Week	[2]

1 24-hour flow proportional composite.

2 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. When discharging at Discharge Point 001, the Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001 as follows, unless otherwise noted. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML:

Table E-3. Effluent Monitoring – Monitoring Location EFF-001

Parameter[12]	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	3/Week[10]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	3/Week[10]	[2]
pH	standard units	Meter	Continuous	[2]
Priority Pollutants				
Copper, Total Recoverable	µg/L	24-hr Composite[1]	1/Quarter	[2,4]
Copper, Dissolved[13]	µg/L	24-hr Composite[1]	1/Quarter	[2,4]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[2,4,5]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	3/Week[3,7]	[2]
	lbs/day	Calculate	3/Week	--
Chlorine, Total Residual	mg/L	Meter	Continuous[6,10]	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	3/Week[9,10]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	3/Week[10,11]	[2]
Chlorpyrifos	µg/L	Grab	1/Year	[2,8]
Diazinon	µg/L	Grab	1/Year	[2,8]

Parameter[12]	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Month[9]	[2]
Hardness, Total (as $CaCO_3$)	mg/L	24-hr Composite[1]	1/Month	[2]
Temperature	°C	Grab	1/Week[9]	[2]

1 24-hour flow proportional composite.

2 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.

3 pH and temperature shall be recorded at the time of ammonia sample collection. Grab samples for pH and temperature may be collected and 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 MRP shall be maintained at the Facility.

4 For priority pollutant constituents, the reporting level (RL) shall be consistent with sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, section IX.F).

5 Unfiltered 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 total mercury shall be by U.S. EPA Method 1631 (Revision E), with an RL of 0.5 ng/L.

6 Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.

7 Concurrent with whole effluent toxicity (WET) monitoring.

8 Chlorpyrifos and diazinon shall be sampled using U.S. EPA Method 625M, Method 8141, or an equivalent GC/MS method with a lower RL than the Basin Plan water quality objectives of 0.015 µg/L and 0.10 µg/L for chlorpyrifos and diazinon, respectively.

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

10 When discharging at Discharge Location 002, the Discharger shall monitor for compliance with biochemical oxygen demand, electrical conductivity, total coliform organisms, total residual chlorine, and total suspended solids effluent limitations at EFF-001 only.

11 Samples shall be collected downstream of the last chlorine addition, prior to dechlorination.

12 Specifications for WET testing are contained in the MRP, Section V.

13 Samples for dissolved copper shall be filtered within 15 minutes of sample collection, prior to sample preservation.

B. Monitoring Location EFF-002

1. When discharging at Discharge Point 002, the Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-002 as follows, unless otherwise noted. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML:

Table E-4. Effluent Monitoring – Monitoring Location EFF-002

Parameter[12]	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite	3/Week[10]	[2]
Total Suspended Solids	mg/L	24-hr Composite	3/Week[10]	[2]
pH	standard units	Meter	Continuous	[2]
Priority Pollutants				
Copper, Total Recoverable	µg/L	24-hr Composite	1/Month	[2,3]
Copper, Dissolved	µg/L	24-hr Composite	1/Month	[2,3,13]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[2,3,4]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	3/Week[1,5]	[2]
	lbs/day	Calculate	3/Week	--
Chlorine, Total Residual	mg/L	Meter	Continuous[9,10]	[2]
Chlorpyrifos	µg/L	Grab	1/Year	[2,6]
Diazinon	µg/L	Grab	1/Year	[2,6]
Dissolved Oxygen	mg/L	Grab	1/Month[8]	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	3/Week[8,10]	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month[7]	[2]
Methylmercury	ng/L	Grab	1/Quarter	[2,4]
Temperature	°C	Grab	1/Week[8]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	3/Week[10,11]	[2]

Parameter[12]	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

1 pH and temperature shall be recorded at the time of ammonia sample collection. Grab samples for pH and temperature may be collected and 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 MRP shall be maintained at the Facility.

2 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.

3 For priority pollutant constituents, the reporting level (RL) shall be consistent with sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, section IX.F).

4 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 methylmercury and total mercury shall be by U.S. EPA Method 1630 and1631 (Revision E), respectively, with an RL of 0.05 ng/L for methylmercury and an RL of 0.5 ng/L for total mercury.

5 Concurrent with whole effluent toxicity (WET) monitoring.

6 Chlorpyrifos and diazinon shall be sampled using U.S. EPA Method 625M, Method 8141, or an equivalent GC/MS method with a lower RL than the Basin Plan water quality objectives of 0.015 µg/L and 0.10 µg/L for chlorpyrifos and diazinon, respectively.

7 Hardness samples shall be collected concurrently with metals samples.

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

9 Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.

10 When discharging at Discharge Location 002, the Discharger shall monitor for biochemical oxygen demand, electrical conductivity, total coliform organisms, total residual chlorine, and total suspended solids at EFF-001 only for compliance determination.

11 Samples shall be collected downstream of the last chlorine addition, prior to dechlorination.

12 Specifications for WET testing are contained in the MRP, Section V.

13 Samples for dissolved copper shall be filtered within 15 minutes of sample collection, prior to sample preservation.

V. WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS

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

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

2. *Sample Types* – The Discharger may use flow-through, static non-renewal or static renewal testing. For static non-renewal and 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 Locations EFF-001 or EFF-002 when discharging at Discharge Points 001 or 002, respectively.

3. *Test Species* – Test species shall be rainbow trout (*Oncorhynchus mykiss*).

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

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

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

1. *Monitoring Frequency* – The Discharger shall perform routine quarterly chronic toxicity testing. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TUc (as $100/EC_{25}$) AND a percent effect greater than 25 percent at 100 percent effluent, the Discharger has the option of conducting two additional compliance monitoring events and performing chronic toxicity testing using the species that exhibited toxicity in order to calculate a median. The optional compliance monitoring events shall occur at least 1 week apart, and the final monitoring event shall be initiated no later than 6 weeks from the routine monitoring event that exhibited toxicity.

2. *Sample Types* – Effluent samples shall be 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Locations EFF-001 or EFF-002 when discharging at Discharge Points 001 or 002, respectively. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001U when discharging at Discharge Point 001 and from Monitoring Location RSW-002U when discharging at Discharge Point 002, as identified in this MRP.

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 (Method Manual).

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-6, below. For Toxicity Reduction Evaluation (TRE) monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-5, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. Laboratory water control shall be used as the diluent.

Table E-5. Chronic Toxicity Testing Dilution Series

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

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

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than 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 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, WET monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Routine and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the monthly SMR, 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 PMSD;

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

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

   Additionally, the monthly SMR's 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, Toxicity Evaluation Study (TES), or TRE monitoring.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly SMR's and reported as percent survival.

3. **TRE Reporting.** Reports for TRE's shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan, 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 re-screening 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 re-screening must be performed prior to permit re-issuance and results submitted with the Report of Waste Discharge (ROWD).

1. **Frequency of Testing for Species Sensitivity Screening.** Species sensitivity screening for chronic toxicity shall include, at a minimum, chronic WET testing four consecutive calendar quarters using the water flea (*Ceriodaphnia dubia*), fathead minnow (*Pimephales promelas*), and green alga (*Pseudokirchneriella subcapitata*). The tests shall be performed using 100 percent effluent and one control. If the first two species sensitivity re-screening events result in no change in the most sensitive species, the Discharger may cease the species sensitivity 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 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 10 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 – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

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, along with the individual Discharger data, may be used to help establish background receiving water quality for reasonable potential analyses (RPA’s) in an NPDES permit after evaluation of the applicability of the data for that purpose. Delta Regional Monitoring Program data, as with all environmental monitoring data, can provide an assessment of water quality at a specific place and time that can be used in

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

A. Monitoring Locations RSW-001U, RSW-001D, RSW-002U, and RSW-002D

1. The Discharger shall monitor Willow Slough Bypass at Monitoring Locations RSW-001U and RSW-001D when discharging at Discharge Point 001, and shall monitor the Conaway Ranch Toe Drain at Monitoring Locations RSW-002U and RSW-002D when discharging at Discharge Point 002, as follows:

Table E-6. Receiving Water Monitoring Requirements

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

[1] A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this MRP shall be maintained at the Facility.

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

2. In conducting receiving water sampling, a log shall be kept of the receiving water conditions throughout the reaches bounded by Monitoring Locations RSW-001U and RSW-001D for Willow Slough Bypass, and Monitoring Locations RSW-002U and RSW-002D for the Conaway Ranch Toe Drain. Attention shall be given to the presence or absence of:

   a. Floating or suspended matter;
   b. Discoloration;
   c. Bottom deposits;
   d. Aquatic life;
   e. Visible films, sheens, or coatings;
   f. Fungi, slimes, or objectionable growths; and
   g. Potential nuisance conditions.

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

B. Monitoring Locations RGW-002, RGW-004, RGW-008, and RGW-009

1. Prior to construction and/or beginning a sampling program of any new or replacement groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of Monitoring Wells RGW-002,

RGW-004, RGW-008, and RGW-009) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

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

Table E-7. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	±0.01 feet	Measurement	2/Year	--
Groundwater Elevation[1]	±0.01 feet	Calculated	2/Year	--
Conventional Pollutants				
Fecal Coliform Organisms	MPN/100 mL	Grab	2/Year	[2]
pH	standard units	Grab	2/Year	[2]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	2/Year	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2/Year	[2]
Metals and Minerals[3]	mg/L	Grab	1/Year	[2]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	2/Year	[2]
Total Dissolved Solids	mg/L	Grab	2/Year	[2]
Total Trihalomethanes[4]	µg/L	Grab	1/Year	[2]

[1] Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well. The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow, which must be reported.

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

[3] Metals sampling shall include the following: aluminum, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, silver, and zinc. Minerals shall include the following standard minerals: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

[4] The sum of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

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

b. Biosolids monitoring shall be conducted using the methods in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (U.S. EPA publication SW-846), as required in 40 C.F.R. section 503.8(b)(4). All results must be reported on a 100 percent dry weight basis. Records of all analyses must state on each

page of the laboratory report whether the results are expressed in "100 percent dry weight" or "as is."

B. Municipal Water Supply

1. Monitoring Location SPL-001

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

Table E-8. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab	1/Year	[2]

[1] 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.

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

C. Filtration System

1. Monitoring Location FIL-001

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

Table E-9. Filtration System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Turbidity	NTU	Meter	Continuous[1,2]

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than 2 hours and effluent from the filtration process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results.

[2] Report daily average and maximum turbidity.

D. Effluent and Receiving Water Characterization

Since the Discharger is required to participate in the Delta Regional Monitoring Program, as described in Attachment E, section VIII, this section only requires effluent characterization monitoring. However, the ROWD for the next permit renewal shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents[1] in Willow Slough Bypass and the Conaway Ranch Toe Drain during the term of the permit. The ambient background characterization monitoring events shall be conducted at Monitoring Locations RSW-001U and RSW-002U. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving waters 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.

[1] Appendix A to 40 C.F.R. part 423.

1. **2020 Quarterly Monitoring.** Samples shall be collected from the effluent (Monitoring Locations EFF-001 and EFF-002) and analyzed for the constituents listed in Table E-10, below. Quarterly monitoring shall be conducted during the year 2020 (four consecutive samples, evenly distributed throughout the year) at EFF-001 and once per the permit term if discharge occurs at EFF-002. The results of such monitoring shall be submitted to the Central Valley Water Board with the quarterly SMR's. Each individual monitoring event shall provide representative sample results for the effluent.

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

3. **Sample Type.** Effluent samples shall be taken as described in Table E-10, below.

   Analytical Methods Report. The Discharger shall submit a report electronically via CIWQS submittal outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, E-4, E-6, E-7, E-8, E-9, and E-10 by the due date shown in the Technical Reports Table (see Table E-12). The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table E-10 below provides required maximum reporting levels in accordance with the SIP.

Table E-10. Effluent Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2-Chloroethyl vinyl ether	µg/L	Grab	1
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	0.5
Carbon Tetrachloride	µg/L	Grab	0.5
Chlorobenzene	µg/L	Grab	0.5
Chloroethane	µg/L	Grab	0.5
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane	µg/L	Grab	0.5
Dichlorobromomethane	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Methyl bromide (Bromomethane)	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
Tetrachloroethene	µg/L	Grab	0.5

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	--
Trichlorofluoromethane	µg/L	Grab	--
1,1,1-Trichloroethane	µg/L	Grab	0.5
1,1,2- Trichloroethane	µg/L	Grab	0.5
1,1-dichloroethane	µg/L	Grab	0.5
1,1-dichloroethylene	µg/L	Grab	0.5
1,2-dichloropropane	µg/L	Grab	0.5
1,3-dichloropropylene	µg/L	Grab	0.5
1,1,2,2-tetrachloroethane	µg/L	Grab	0.5
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	Grab	0.5
1,2,4-trichlorobenzene	µg/L	Grab	1
1,2-dichloroethane	µg/L	Grab	0.5
1,2-dichlorobenzene	µg/L	Grab	0.5
1,3-dichlorobenzene	µg/L	Grab	0.5
1,4-dichlorobenzene	µg/L	Grab	0.5
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate[2]	µg/L	Grab	5
Butyl benzyl phthalate	µg/L	Grab	10
Chrysene	µg/L	Grab	5

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Di-n-butylphthalate	µg/L	Grab	10
Di-n-octylphthalate	µg/L	Grab	10
Dibenzo(a,h)-anthracene	µg/L	Grab	0.1
Diethyl phthalate	µg/L	Grab	10
Dimethyl phthalate	µg/L	Grab	10
Fluoranthene	µg/L	Grab	10
Fluorene	µg/L	Grab	10
Hexachlorocyclopentadiene	µg/L	Grab	5
Indeno(1,2,3-c,d)pyrene	µg/L	Grab	0.05
Isophorone	µg/L	Grab	1
N-Nitrosodiphenylamine	µg/L	Grab	1
N-Nitrosodimethylamine	µg/L	Grab	5
N-Nitrosodi-n-propylamine	µg/L	Grab	5
Nitrobenzene	µg/L	Grab	10
Pentachlorophenol	µg/L	Grab	1
Phenanthrene	µg/L	Grab	5
Phenol	µg/L	Grab	1
Pyrene	µg/L	Grab	10
Aluminum[3]	µg/L	24-hr Composite[4]	--
Antimony	µg/L	24-hr Composite[4]	5
Arsenic	µg/L	24-hr Composite[4]	10
Asbestos	MFL	24-hr Composite[4]	--
Beryllium	µg/L	24-hr Composite[4]	2
Cadmium	µg/L	24-hr Composite[4]	0.5
Chromium (Total)	µg/L	24-hr Composite[4]	50
Chromium (VI)	µg/L	Grab	10
Copper[3]	µg/L	24-hr Composite[4]	5
Cyanide[3]	µg/L	Grab	5
Fluoride	µg/L	24-hr Composite[4]	--
Iron	µg/L	24-hr Composite[4]	--
Lead	µg/L	24-hr Composite[4]	2
Mercury[3]	µg/L	Grab	0.5
Manganese	µg/L	24-hr Composite[4]	--
Nickel	µg/L	24-hr Composite[4]	50
Selenium[3]	µg/L	24-hr Composite[4]	5
Silver	µg/L	24-hr Composite[4]	2
Thallium	µg/L	24-hr Composite[4]	1
Tributyltin	µg/L	24-hr Composite[4]	--
Zinc	µg/L	24-hr Composite[4]	20
4,4'-DDD	µg/L	24-hr Composite[4]	0.05
4,4'-DDE	µg/L	24-hr Composite[4]	0.05
4,4'-DDT	µg/L	24-hr Composite[4]	0.01
alpha-Endosulfan	µg/L	24-hr Composite[4]	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite[4]	0.01
Aldrin	µg/L	24-hr Composite[4]	0.005
beta-Endosulfan	µg/L	24-hr Composite[4]	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Chlordane	µg/L	24-hr Composite[4]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Dieldrin	µg/L	24-hr Composite[4]	0.01

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Endosulfan sulfate	µg/L	24-hr Composite[4]	0.01
Endrin	µg/L	24-hr Composite[4]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[4]	0.01
Heptachlor	µg/L	24-hr Composite[4]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[4]	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[4]	0.5
PCB-1016	µg/L	24-hr Composite[4]	0.5
PCB-1221	µg/L	24-hr Composite[4]	0.5
PCB-1232	µg/L	24-hr Composite[4]	0.5
PCB-1242	µg/L	24-hr Composite[4]	0.5
PCB-1248	µg/L	24-hr Composite[4]	0.5
PCB-1254	µg/L	24-hr Composite[4]	0.5
PCB-1260	µg/L	24-hr Composite[4]	0.5
Toxaphene	µg/L	24-hr Composite[4]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[4]	--
Ammonia (as N)[3]	mg/L	Grab	--
Boron	µg/L	24-hr Composite[4]	--
Chloride	mg/L	24-hr Composite[4]	--
Flow[3]	MGD	Meter	--
Hardness (as $CaCO_3$)[3]	mg/L	24-hr Composite[4]	--
Foaming Agents (MBAS)	µg/L	Grab	--
Mercury, Methyl[3]	ng/L	Grab	--
Nitrate (as N)	mg/L	Grab	--
Nitrite (as N)	mg/L	Grab	--
pH[3]	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite[4]	--
Specific conductance (EC)[3]	µmhos/cm	24-hr Composite[4]	--
Sulfate	mg/L	24-hr Composite[4]	--
Sulfide (as S)	mg/L	Grab	--
Sulfite (as SO_3)	mg/L	Grab	--
Temperature[3]	°C	Grab	--
Total Dissolved Solids	mg/L	24-hr Composite[4]	--

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

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

3 The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given month, as required in Tables E-4 or E-5, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent sampling.

4 24-hour flow proportional composite.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

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

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

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

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program 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 SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMR's are required even if there is no discharge. If no discharge occurs during the month, the monitoring report must be submitted stating that there has been no discharge.

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

Table E-11. 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

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
2/Year	Permit effective date	1 January through 31 December	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 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 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 average monthly effluent limitation (AMEL), average weekly effluent limitation (AWEL), or maximum daily effluent limitation (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 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, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

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

6. The Discharger shall submit SMR's in accordance with the following requirements:

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

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

c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all SMR's for which sample analyses were performed. This requirement applies to samples analyzed pursuant to this MRP, Section I.F. Providing final laboratory reports, or equivalent, for chemical, bacteriological, and bioassay analyses, conducted by a laboratory accredited by DDW, that reports the Discharger's sample result(s) and results of quality assurance/quality control analyses applicable to the samples tested, can be used to fully satisfy this requirement.

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

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

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

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

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

c. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMR's. The percent removal shall be calculated as specified in section VII.A of the 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.E of the Waste Discharge Requirements and as defined in Attachment A.

e. **Total Calendar Annual Mass Loading Mercury and Methylmercury Effluent Limitations**. The Discharger shall calculate and report the total calendar annual mercury and methylmercury mass loadings for the effluent in the December SMR. The total calendar annual mass loading values shall be calculated as specified in section VII.C of the Waste Discharge Requirements.

f. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall report monthly in the SMR the dissolved oxygen concentrations in the receiving water (Monitoring Locations RSW-001U, RSW-001D, RSW-002U, and RSW-002D).

g. **Turbidity Receiving Water Limitations**. The Discharger shall calculate and report the turbidity increase in the receiving waters applicable to the natural turbidity conditions 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-001U and RSW-001D when discharging at Discharge Point 001, and Monitoring Locations RSW-002U and RSW-002D when discharging at Discharge Point 002.

i. **Chlorpyrifos and Diazinon Effluent Limitations**. The Discharger shall calculate and report the value of S_{AMEL} and S_{AWEL} for the effluent, using the equations in sections IV.A.1.g and IV.A.2.g of the Order, and consistent with the Compliance Determination Language in section VII.L of the Waste Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

DMR's 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 is available at the DMR website at: http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring/.

D. Other Reports

1. **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 Facility 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.

2. **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 non-compliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for non-compliance 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 that are known or suspected to be discharged by non-domestic 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.

b. 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 non-priority pollutants that 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.

c. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by non-domestic 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 non-domestic 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 non-compliance with sludge disposal requirements.

d. The cumulative number of non-domestic users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of non-domestic user responses.

e. An updated list of the Discharger's significant industrial users (SIU's) 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 SIU's, 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.

f. 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.

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

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

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

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

i. Name of SIU;

ii. Category, if subject to federal categorical standards;

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

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

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

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

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

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

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; and

xi. Disconnection from discharge to the POTW.

i. A brief description of any programs the POTW implements to reduce pollutants from non-domestic users that are not classified as SIU's;

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

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

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

Pretreatment Program reports shall be submitted 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

3. Technical Report Submittals. This Order includes requirements to submit a Report of Waste Discharge (ROWD), special study technical reports, progress reports, and other reports identified in the MRP (hereafter referred to collectively as "technical reports"). The Technical Reports Table below summarizes 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-12. Reporting Requirements for Special Provisions Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Standard Reporting Requirements			
1	Report of Waste Discharge	31 January 2023	ROWD
2	Analytical Methods Report	4 February 2019	MRP IX.D.4
Compliance Schedule for Final Effluent Limitations for Methylmercury (WDR Section VI.C.7.a)			
Phase 1			
3	CVCWA Coordinated Methylmercury Control Study Work Plan	Complete	--
4	Pollution Prevention Plan (PPP)[1] for Mercury	Complete	--
5	Implement CVCWA Coordinated Methylmercury Control Study Work Plan	Immediately following Executive Officer Approval	WDR VI.C.7.a.iii
6	Annual Progress Reports[2]	20 October 2019	WDR VI.C.7.a.iv.1
7		20 October 2020	WDR VI.C.7.a.iv.2
8		20 October 2021	WDR VI.C.7.a.iv.3
9		20 October 2022	WDR VI.C.7.a.iv.4
10		20 October 2023	WDR VI.C.7.a.iv.5
11	Final CVCWA Coordinated Methylmercury Control Study	Complete	WDR VI.C.7.a.v
Phase 2			
12	Implement methylmercury control programs	TBD[3]	WDR VI.C.7.a.vi
13	Full Compliance	31 December 2030[3]	WDR VI.C.7.a.vii
Other Reports			
14	Dissolved-to-Total Metal Translators Verification Study Work Plan	7 June 2019	WDR VI.C.2.c

Report #	Technical Report	Due Date	CIWQS Report Name
15	Dissolved-to-Total Metal Translators Verification Study	31 January 2023	WDR VI.C.2.d
16	Pollution Prevention Plan (PPP) for Mercury, Annual Progress Reports	30 January 2020	WDR VI.C.3.a
17		30 January 2021	
18		30 January 2022	
19		30 January 2023	
20		30 January 2024	
21	Salinity Evaluation and Minimization Plan (if necessary)	31 January 2023	WDR VI.C.3.c
22	Annual Operations Report	1 February 2019	MRP X.D.1
23		1 February 2020	
24		1 February 2021	
25		1 February 2022	
26		1 February 2023	
27	Annual Pretreatment Reports	28 February 2019	MRP X.D.2
28		28 February 2020	
29		28 February 2021	
30		28 February 2022	
31		28 February 2023	

[1] The PPP for mercury shall be implemented in accordance with Section VI.C.3.a.

[2] Beginning **20 October 2019** and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on pollution minimization activities implemented and evaluation of their effectiveness, including a summary of total mercury and methylmercury monitoring results.

[3] 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

Contents

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

WDID	5A570100001
CIWQS Facility Place ID	219223
Discharger	City of Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA 95616
	Yolo County
Facility Contact, Title and Phone	John Alexander, Wastewater Division Manager, (530) 747-8283
Authorized Person to Sign and Submit Reports	John Alexander, Wastewater Division Manager, (530) 747-8283
Mailing Address	23 Russell Boulevard, Davis, CA 95616
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Recycling Requirements	Not Applicable
Facility Permitted Flow	7.5 million gallons per day (MGD), average dry weather flow
Facility Design Flow	7.5 MGD, average dry weather flow
Watershed	Lower Sacramento
Receiving Water	Willow Slough Bypass and Conaway Ranch Toe Drain
Receiving Water Type	Inland Surface Water

A. The City of Davis (hereinafter Discharger) is the owner and operator of the City of Davis Wastewater Treatment Plant (hereinafter Facility), a POTW.

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

B. The Facility discharges wastewater to Willow Slough Bypass and the Conaway Ranch Toe Drain, both waters of the United States, within the Lower Sacramento Watershed. The

Discharger was previously regulated by Order R5-2013-0127-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079049 adopted on 4 October 2013 and amended on 9 October 2014, with an expiration date of 1 November 2018. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. When applicable, state law requires dischargers to file a petition with the State Water Resources Control Board (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 7 May 2018. The application was deemed complete on 26 July 2018. A site visit was conducted on 13 March 2018, 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 5 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 (CCR), 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 community of Davis and serves a population of approximately 68,000. The design average dry weather flow capacity of the Facility is 7.5 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

The Discharger completed secondary and tertiary Facility upgrades required by Time Schedule Order (TSO) R5-2014-0159 on 9 June 2017 to replace the previous overland flow treatment system. Following a startup period, the Discharger submitted a Provisional Performance Acceptance Certificate regarding the Facility's secondary and tertiary upgrades on 1 September 2017. The upgraded treatment system at the Facility includes a headworks with a mechanical bar screen, aerated grit removal, primary sedimentation, aeration basins including nitrification and denitrification, secondary clarification, tertiary filtration, chlorine disinfection with sodium hypochlorite, dechlorination with sodium bisulfite, and reaeration. After reaeration, effluent is discharged to Willow Slough Bypass at Discharge Point 001. During periods of high rainfall in winter months, effluent remaining in the wetlands and mixed with storm water may also be discharged to the Conaway Ranch Toe Drain, via the restoration wetlands, at Discharge Point 002.

The wetlands include a wastewater tract, a storm water tract, and seven numbered tracts, each constructed with flexibility to flow to adjacent downgradient cells. The routine wastewater treatment flow is through the wastewater tract, tract 6, and tract 7 before being discharged at Discharge Point 002. The wetlands have the ability to recirculate the treated flow.

Solids are dewatered using two rotary drum thickeners and then anaerobically digested in two anaerobic digesters, which also receive primary treatment solids. Digested sludge is

transferred to two sludge holding tanks and then dewatered using two screw presses. Dried biosolids are hauled to an off site landfill. The Facility produces approximately 450 dry metric tons of biosolids, annually. Transportation and disposal/reuse of the biosolids are regulated by U.S. EPA under 40 C.F.R. part 503.

B. Discharge Points and Receiving Waters

1. The Facility is located in Sections 29 and 30, T9N, R3E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to Willow Slough Bypass, a water of the United States and part of the Yolo Bypass, at a point latitude 38° 35' 24" N and longitude 121° 39' 50" W.
3. Treated municipal wastewater is discharged at Discharge Point 002 to the Conaway Ranch Toe Drain, a water of the United States within the Yolo Bypass, at a point latitude 38° 34' 33" N and longitude 121° 38' 02" W.

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

1. Effluent limitations contained in Order R5-2013-0127-01 for discharges from Discharge Point 001 (Monitoring Locations EFF-A and EFF-001) and representative monitoring data from the term of Order R5 2013-0127-01 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data – Discharge Point 001

Parameter	Units	Effluent Limitation			Monitoring Data (April 2015 – March 2018)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	7.5[1]			11.7[2]
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)[3]	mg/L[4]	30	45	90	34	41	52
	mg/L[5]	10	15	20	4.2	5.3	9.4
	lbs/day[4,6]	1,876	2,815	5,633	649	1,147	1,262
	lbs/day[5,6]	630	940	1,300	149	243	298
	% Removal[5]	85	--	--	NR	--	--
pH	standard units[4]	--	--	6.5 – 8.5	--	--	6.5 – 8.8
	standard units[5]	--	--	6.5 – 8.0	--	--	6.5 – 7.4
Total Suspended Solids[3]	mg/L[4]	50	75	150	47	60	69
	mg/L[5]	10	15	20	4.4	8.2	8.2
	lbs/day[4,6]	3,129	4,694	9,388	2,606	2,784	4,161
	lbs/day[5,6]	630	940	1,300	110	150	170
	% Removal[5]	85	--	--	NR	--	--
Priority Pollutants							
Cadmium, Total Recoverable	µg/L	4.3	--	8.3	0.12	--	0.12
Copper, Total Recoverable	µg/L[7]	23	--	49	48	--	48
Cyanide, Total (as CN)	µg/L[8]	3.8	--	8.1	27	--	27

Parameter	Units	Effluent Limitation			Monitoring Data (April 2015 – March 2018)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Selenium, Total Recoverable	µg/L[8]	4.4	--	7.1	4.9	--	4.9
	lbs/day[6,8]	0.28	--	0.44	2.1	--	2.1
Mercury, Total Recoverable	lbs/month	0.038	--	--	0.025	--	--
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L[7]	392	--	750	430	--	430
Ammonia, Total (as N)	mg/L[4]	--	--	20.5	--	--	12
	mg/L[5,9]	1.3	--	4.0	0.20	--	0.27
	mg/L[5,10]	1.8	--	3.3	0.23	--	0.92
	lbs/day[4,6]	--	--	1,280	--	--	559
	lbs/day[4,6,9]	82	--	251	11	--	14
	lbs/day[5,6,10]	113	--	207	16	--	36
Chlorine, Total Residual[11]	mg/L	--	0.011[12]	0.019[13]	--	--	5.9
Chlorpyrifos	µg/L	[14]	--	[15]	ND	--	ND
Diazinon	µg/L	[14]	--	[15]	ND	--	ND
Electrical Conductivity @ 25°C[3]	µmhos/cm[16]	2,050[17]	--	--	1,516[18]	--	--
Total Coliform Organisms[11]	MPN/100 mL[4]	--	--	500[19]	--	--	1,600
	MPN/100 mL[5]	2.2[20]	23[21]	240[19]	--	--	4.0
Acute Toxicity	% Survival	--	--	70[22]/90[23]	--	--	90[24]
Chronic Toxicity	TUc	--	--	[25]	--	--	>8

Parameter	Units	Effluent Limitation			Monitoring Data (April 2015 – March 2018)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

NR – Not Reported
ND – Non-Detect

1 Applied as an average dry weather flow effluent limitation.
2 Represents the maximum observed daily discharge.
3 Compliance measured at Monitoring Location EFF-A following completion of Facility upgrades.
4 Interim effluent limitation effective until 25 October 2017, per compliance schedule.
5 Final effluent limitation effective 25 October 2017.
6 Based on an average dry weather flow of 7.5 MGD.
7 The Discharger was subject to interim effluent limits for copper and aluminum at Discharge Point 001 under Time Schedule Order (TSO) R5-2013-0128, effective until 25 October 2017.
8 The Discharger was subject to interim effluent limits for cyanide and selenium at Discharge Point 001 under TSO R5-2010-0029-02, effective until 31 January 2015.
9 Applicable to discharges from 1 March through 31 October.
10 Applicable to discharges from 1 November through 29 February.
11 Compliance measured at Monitoring Location EFF-A.
12 Applied as a 4-day average effluent limitation.
13 Applied as a 1-hour average effluent limitation.
14 Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$

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

15 Maximum Daily Effluent Limitation

$$S_{MDEL} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

$C_{D\ max}$ = maximum daily diazinon effluent concentration in µg/L.
$C_{C\ max}$ = maximum daily chlorpyrifos effluent concentration in µg/L.

16 Interim effluent limitation from R5-2013-0127-01.
17 Applied as an annual average effluent limitation.
18 Represents the maximum observed annual average concentration.
19 Applied as an instantaneous maximum effluent limitation.
20 Applied as a 7-day median effluent limitation.
21 Not to be exceeded more than once in any 30-day period.
22 Minimum percent survival for any one bioassay.
23 Median percent survival of three consecutive acute bioassays.
24 Represents the minimum observed percent survival.
25 There shall be no chronic toxicity in the effluent.

B. Effluent limitations contained in Order R5-2013-0127-01 for discharges from Discharge Point 002 (Monitoring Locations EFF-A and EFF-002) and representative monitoring data from the term of Order R5 2013-0127-01 are as follows:

Table F-3. Historic Effluent Limitations and Monitoring Data – Discharge Point 002

Parameter	Units	Effluent Limitation			Monitoring Data (April 2015 – March 2018)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	7.5[1]	--	--	13.3[2]
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)[3]	mg/L[4]	30	45	90	17	18	23
	mg/L[5]	10	15	20	NR	NR	NR
	lbs/day[4,6]	1,876	2,815	5,633	712	1,285	1,369
	lbs/day[5,6]	630	940	1,300	NR	NR	NR
	% Removal[5]	85	--	--	NR	--	--
pH	standard units[4]	--	--	6.5 – 8.5	--	--	6.7 – 8.6
	standard units[5]	--	--	6.5 – 8.0	--	--	NR
Total Suspended Solids[3]	mg/L[4]	50	75	150	38	74	74
	mg/L[5]	10	15	20	NR	NR	NR
	lbs/day[4,6]	3,129	4,694	9,388	1,558	1,803	2,069
	lbs/day[5,6]	630	940	1,300	NR	NR	NR
	% Removal[5]	85	--	--	NR	--	--
Priority Pollutants							
Copper, Total Recoverable	µg/L[7]	16	--	33	11	--	11
Selenium, Total Recoverable	µg/L[8]	4.5	--	6.9	1.3	--	1.3
	lbs/day[6,8]	0.28	--	0.43	0.053	--	0.053
Mercury, Total Recoverable	grams/year	75[9]	--	--	12.5[10]	--	--
Non-Conventional Pollutants							
Aluminum, Total Recoverable	µg/L[11]	400	--	750	470	--	470
Ammonia, Total (as N)	mg/L[4]	--	--	13.2	--	--	3.7
	mg/L[5,12]	1.5	--	4.7	NR	--	NR
	mg/L[5,13]	2.3	--	5.6	NR	--	NR
	lbs/day[4,6]	--	--	826	--	--	255.3
	lbs/day[5,6,12]	94	--	295	NR	--	NR
	lbs/day[5,6,13]	144	--	352	NR	--	NR
Chlorine, Total Residual[14]	mg/L	--	0.011[15]	0.019[16]	--	--	5.9
Chlorpyrifos	µg/L	[17]	--	[18]	ND	--	ND
Diazinon	µg/L	[17]	--	[18]	ND	--	ND
Electrical Conductivity @ 25°C[3]	µmhos/cm[19]	2,050[20]	--	--	1,470[21]	--	--
Methylmercury	grams/year	0.17[22]	--	--	--	--	--
Total Coliform Organisms[14]	MPN/100 mL[4]	--	--	500[23]	--	--	1,600
	MPN/100 mL[5]	2.2[24]	23[25]	240[23]	--	--	NR
Acute Toxicity	% Survival	--	--	70[26]/90[27]	--	--	100[28]

Parameter	Units	Effluent Limitation			Monitoring Data (April 2015 – March 2018)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Chronic Toxicity	TUc	--	--	[29]	--	--	>1

NR – Not Reported
ND – Non-Detect

1 Applied as an average dry weather flow effluent limitation.
2 Represents the maximum observed daily discharge.
3 Compliance measured at Monitoring Location EFF-A following completion of Facility upgrades.
4 Interim effluent limitation effective until 25 October 2017, per compliance schedule.
5 Final effluent limitation effective 25 October 2017.
6 Based on an average dry weather flow of 7.5 MGD.
7 The Discharger was subject to interim effluent limits for copper at Discharge Point 002 under TSO R5-2010-0029-02, effective until 30 September 2014.
8 The Discharger was subject to interim effluent limits for selenium at Discharge Point 002 under TSO R5-2010-0029-02, effective until 31 January 2015.
9 Interim annual mass loading effluent limitation effective until 31 December 2030.
10 Represents the maximum total calendar annual mass load.
11 The Discharger was subject to interim effluent limits for aluminum at Discharge Point 002 under TSO R5-2013-0128, effective until 25 October 2017.
12 Applicable to discharges from 1 March through 31 October.
13 Applicable to discharges from 1 November through 29 February.
14 Compliance measured at Monitoring Location EFF-A.
15 Applied as a 4-day average effluent limitation.
16 Applied as a 1-hour average effluent limitation.
17 Average Monthly Effluent Limitation

$$S_{AMEL} = \frac{C_{D\ avg}}{0.079} + \frac{C_{C\ avg}}{0.012} \leq 1.0$$

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

18 Maximum Daily Effluent Limitation

$$S_{MDEL} = \frac{C_{D\ max}}{0.16} + \frac{C_{C\ max}}{0.025} \leq 1.0$$

$C_{D\ max}$ = maximum daily diazinon effluent concentration in µg/L.
$C_{C\ max}$ = maximum daily chlorpyrifos effluent concentration in µg/L.

19 Interim effluent limitation from Order R5-2013-0127-01.
20 Applied as an annual average effluent limitation.
21 Represents the maximum observed annual average concentration.
22 Final annual mass loading effluent limitation effective 31 December 2030.
23 Applied as an instantaneous maximum effluent limitation.
24 Applied as a 7-day median effluent limitation.
25 Not to be exceeded more than once in any 30-day period.
26 Minimum percent survival for any one bioassay.
27 Median percent survival of three consecutive acute bioassays.
28 Represents the minimum observed percent survival.
29 There shall be no chronic toxicity in the effluent.

D. Compliance Summary

The following compliance summary represents violations that occurred either before the tertiary upgrades were completed or during the startup period for the upgraded Facility.

1. The Central Valley Water Board issued Administrative and Civil Liability (ACL) Complaint R5 2014-0552 on 8 September 2014, which proposed to assess a civil liability of $18,000 against the Discharger for effluent violations for total residual chlorine and total suspended solids (TSS) that occurred from the period 1 October 2012 through 31 March 2014 under Orders R5-2007-0132-02 and R5-2013-0127. The Discharger paid the mandatory minimum penalty of $18,000.
2. The Central Valley Water Board issued ACL Complaint R5 2015-0513 on 9 March 2015, which proposed to assess a civil liability of $6,000 against the Discharger for effluent violations for copper that occurred from the period 1 April 2014 through 31 December 2014 under Order R5-2013-0127. The Discharger paid the mandatory minimum penalty of $6,000.
3. The Central Valley Water Board issued ACL Complaint R5 2016-0515 on 28 March 2016, which proposed to assess a civil liability of $6,000 against the Discharger for effluent violations for biochemical oxygen demand (BOD_5) and pH that occurred from the period 1 January 2015 through 31 December 2015 under Order R5-2013-0127-01. The Discharger paid the mandatory minimum penalty of $3,000.
4. The Central Valley Water Board issued ACL Complaint R5 2016-0555 on 7 September 2016, which proposed to assess a civil liability of $24,000 against the Discharger for effluent violations for BOD_5, pH, total coliform organisms, and total residual chlorine that occurred from the period 1 January 2016 through 31 May 2016 under Order R5 2013-0127-01. The Discharger paid the mandatory minimum penalty of $24,000.
5. The Central Valley Water Board issued ACL Complaint R5 2017-0547 on 11 September 2017, which proposed to assess a civil liability of $21,000 against the Discharger for effluent violations for total residual chlorine that occurred from the period 1 July 2016 through 30 June 2017 under Order R5 2013-0127-01. The Discharger paid the mandatory minimum penalty of $21,000.

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

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

B. California Environmental Quality Act (CEQA)

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

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

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

a. **Basin Plan.** The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition* (Revised July 2016), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

The Basin Plan in Table II-1, section II, does not specifically identify beneficial uses for the Willow Slough Bypass nor the Conaway Ranch Toe Drain, but does identify present and potential uses for the Yolo Bypass. The Willow Slough Bypass is part of the Yolo Bypass flood protection structure and the Conaway Ranch Toe Drain is located within the Yolo Bypass. Therefore, the beneficial uses for the Yolo Bypass listed in Table II-1 of the Basin Plan apply to the Willow Slough Bypass and the Conaway Ranch Toe Drain.

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 and domestic supply (MUN). Resolution 88-63 also states, "*Any body of water which has current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion*." The Basin Plan does not specifically assign MUN as a beneficial use to the Yolo Bypass; therefore, this Order does not apply the MUN beneficial use to discharges from Discharge Point 001 to the Willow Slough Bypass nor from Discharge Point 002 to the Conaway Ranch Toe Drain.

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Willow Slough Bypass	Existing: Agricultural supply, including irrigation and 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	Conaway Ranch Toe Drain	Existing: Agricultural supply, including irrigation and 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).
--	Groundwater	Potential: Municipal and domestic water 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, which 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 Antidegradation Policy). The State Antidegradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Antidegradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The 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 Antidegradation Policy. The Central Valley Water 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. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

7. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code requires that *"the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to section 313 of the Emergency Planning and Community Right to*

Know Act of 1986 (42 U.S.C. sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective".

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

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

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

9. **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.

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 (WQLS's). The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 6 April 2016, U.S. EPA gave final approval to California's 2014 and 2016 section 303(d) List of Water

Quality Limited Segments. The Basin Plan references this list of WQLS's, 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 [WQLS's]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." The listing for the Willow Slough Bypass includes boron, chlorpyrifos, diuron, fecal coliform indicator bacteria, malathion, selenium, specific conductivity, and unknown toxicity. The Conaway Ranch Toe Drain and Yolo Bypass are not listed as impaired on the 2014 and 2016 303(d) list. The northern boundary of the legal Sacramento-San Joaquin Delta crosses the Yolo Bypass to the south of the Facility and Discharge Points 001 and 002. However, when the Yolo Bypass is flooded, it is considered part of the Delta Waterways (northern portion) WQLS. The listing for the Delta Waterways (northern portion) includes chlordane, chlorpyrifos, dichlorodiphenyltrichloroethane (DDT), diazinon, dieldrin, group A pesticides, invasive species, mercury, polychlorinated biphenyls (PCB's) and unknown toxicity.

2. **Total Maximum Daily Loads (TMDL's).** Table F-5, below, identifies the 303(d) listings and any applicable TMDL's for the Willow Slough Bypass and northern portion of the Sacramento-San Joaquin Delta. This Order includes water quality-based effluent limitations (WQBEL's) that are consistent with the assumptions and considerations of the applicable waste load allocations (WLA's) in the 2007 TMDL for diazinon and chlorpyrifos and the 2011 TMDL for methylmercury.

Table F-5. 303 (d) List for the Willow Slough Bypass and the Sacramento-San Joaquin Delta (Northern Portion)

Pollutant	Potential Sources	TMDL Status
Willow Slough Bypass – Discharge Point 001		
Boron	Source Unknown	Planned for Completion (2021)
Chlorpyrifos	Agriculture	Addressed by action other than TMDL
Diuron	Agriculture	Addressed by action other than TMDL
Indicator Bacteria	Source Unknown	Planned for Completion (2027)
Malathion	Source Unknown	Planned for Completion (2027)
Selenium	Source Unknown	Planned for Completion (2027)
Specific Conductivity	Source Unknown	Planned for Completion (2027)
Unknown Toxicity	Source Unknown	Planned for Completion (2027)
Sacramento-San Joaquin Delta (Northern Portion) – Discharge Points 001 and 002		
Chlordane	Source Unknown	Planned for Completion (2029)
Chlorpyrifos	Source Unknown	Adopted and Effective (10 October 2007)
DDT	Source Unknown	Planned for Completion (2011)
Diazinon	Source Unknown	Adopted and Effective (10 October 2007)
Dieldrin	Source Unknown	Planned for Completion (2011)
Group A Pesticides	Source Unknown	Planned for Completion (2011)

Pollutant	Potential Sources	TMDL Status
Invasive Species	Source Unknown	Planned for Completion (2019)
Mercury	Agricultural Return Flows	Adopted and Effective (20 October 2011)
	Atmospheric Deposition	
	Highway/Road/Bridge Runoff	
	Industrial Point Sources	
	Municipal Point Sources	
	Natural Sources	
	Resource Extraction (Abandoned Mines)	
	Urban Runoff/Storm Sewers	
PCB's	Source Unknown	Planned for Completion (2019)
Unknown Toxicity	Source Unknown	Planned for Completion (2027)

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

E. Other Plans, Policies and Regulations

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

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

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

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

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., § 1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal regulations, 40 C.F.R. section 122.44(d)(1)(vi), further provide that "*[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that*

causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00 contains an implementation policy, "*Policy for Application of Water Quality Objectives*," which specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "*Policy for Application of Water Quality Objectives*")(40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCL's)*" in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCL's. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

A. Discharge Prohibitions

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

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at 40 C.F.R. section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the 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 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 be 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 CCR, 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 R5-2013-0127-01 included flow as effluent limits at Discharge Points 001 and 002 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 BOD_5, 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. 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 WQBEL's that are equal to or more stringent than the secondary technology-based treatment described in 40 C.F.R. part 133 (see section IV.C.3.c of the Fact Sheet for a discussion on pathogens, which includes WQBEL's for BOD_5 and TSS).

b. **pH.** The secondary treatment regulations at 40 C.F.R. part 133 also require that pH be maintained between 6.0 and 9.0 standard units. This Order, however, requires more stringent WQBEL's for pH to comply with the Basin Plan's water quality objectives for pH.

Summary of Technology-Based Effluent Limitations
Discharge Points 001 and 002

Table F-6. Summary of Technology-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30[1]	45[1]	--	--	--
	% Removal	85	--	--	--	--
pH	standard units	--	--	--	6.0[1]	9.0[1]
Total Suspended Solids	mg/L	30[1]	45[1]	--	--	--
	% Removal	85	--	--	--	--

[1] More stringent WQBEL's are applicable to the discharge and are included in this Order, as described further in section IV.C.3 of this Fact Sheet.

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

1. Scope and Authority

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

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

The process for determining reasonable potential and calculating WQBEL's when necessary is intended to protect the designated uses of the receiving water, as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are

contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for MUN. Resolution 88-63 also states, "*Any body of water which has current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion*." The Basin Plan does not specifically assign MUN as a beneficial use to the Yolo Bypass; therefore, this Order does not apply the MUN beneficial use to discharges from Discharge Point 001 to the Willow Slough Bypass nor from Discharge Point 002 to the Conaway Ranch Toe Drain.

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

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

a. **Receiving Water and Beneficial Uses.** Willow Slough Bypass and the Yolo Bypass were constructed together as part of the Sacramento River Flood Control Project by the U.S. Army Corps of Engineers between 1947 and 1950. Willow Slough Bypass does not alter the natural course of Willow Slough. Willow Slough Bypass was built to contain and route flood water from the Willow Slough watershed system to the larger Yolo Bypass, and the levees that comprise the Willow Slough Bypass are continuous extensions of the levees that form the west side of the Yolo Bypass. At the diversion point of Willow Slough Bypass from Willow Slough, an earthen fill control structure was built, with two 48-inch corrugated metal pipes carrying the flow along the natural course of Willow Slough, and an overflow weir to allow excess flows to flow into the Willow Slough Bypass. There are no obstructions or other impediments between the water in the Willow Slough Bypass and the Yolo Bypass, and thus, Willow Slough Bypass is a part of the Yolo Bypass flood

protection structure. The Conaway Ranch Toe Drain is located within the west levee of the Yolo Bypass.

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

b. **Effluent and Ambient Background Data.** The RPA for Discharge Point 001, as described in section IV.C.3 of this Fact Sheet, was based on effluent data collected at EFF-001 submitted in SMR's from September 2017 through March 2018, following a startup period for the completed Facility upgrades. No discharge has occurred at Discharge Point 002 following the completion of Facility upgrades, therefore, the RPA for Discharge Point 002 was conducted using effluent data at EFF-001 which is representative of the upgraded Facility. Tertiary treated effluent is only discharged to the wetlands to maintain water levels during dry periods. Effluent tracts, which do not typically receive effluent during the wet season, and storm water tracts mix prior to pH adjustment, and effluent is only discharged at Discharge Point 002 for storm water management.

Since the Discharger is required to participate in the Delta Regional Monitoring Program, routine receiving water monitoring was not required throughout the term of Order R5-2013-0127-01 and limited receiving water monitoring data is available. Therefore, where receiving water data was necessary to calculate pH-, temperature-, and hardness-dependent criteria (i.e., ammonia and CTR metals), receiving water monitoring conducted over the entire term of Order R5-2013-0127-01, from 4 October 2013 through March 2018, was considered.

On 6 April 2018, the Discharger notified staff that effluent from the Facility flowed upstream during the 20 September 2017 priority pollutant sampling event. This resulted in a mixture of upstream receiving water and effluent at RSW-001U; therefore, the upstream receiving water sample collected on 20 September 2017 is not considered representative of the upstream receiving water. The Discharger resampled on 9 May 2018 and 11 June 2018 for priority pollutants at RSW-001U and confirmed the effluent was not mixing with receiving water at RSW-001U during sample collection. The RPA was conducted with upstreaming receiving water data submitted on 9 May 2018 and 11 June 2018 in lieu of the 20 September 2017 upstream receiving water data.

c. **Assimilative Capacity/Mixing Zone.** Current flow data indicates that, at times, Willow Slough Bypass and the Conaway Ranch Toe Drain are dominated by effluent from the Facility downstream of Discharge Points 001 and 002, respectively. The ephemeral nature of Willow Slough Bypass and the Conaway Ranch Toe Drain means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Willow Slough Bypass and the Conaway Ranch Toe Drain help support the aquatic life. Both conditions may exist within a short time span, where Willow Slough Bypass and the Conaway Ranch Toe Drain would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Sacramento River. Dry conditions may also occur throughout the year, particularly in low rainfall years. Significant dilution may occur during and immediately following high rainfall events. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals, and aquatic life.

The Discharger has not submitted a mixing zone/dilution study requesting dilution credits. Thus, consistent with the assumptions used for Order R5-2013-0127-01, the worst-case dilution for Willow Slough Bypass and the Conaway Ranch Toe Drain is assumed to be zero to provide protection of the applicable beneficial uses. The impact of assuming zero assimilative capacity within the receiving waters is that effluent limitations are applied end-of-pipe, with no allowance for dilution within the receiving waters.

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. For priority pollutant metals, the SIP requires the use of U.S. EPA conversion factors contained in Appendix 3 to convert the applicable dissolved criteria to total recoverable criteria. Alternatively, the SIP allows the use of site-specific metal translators that "…*can be developed from field data by either direct determination of the fraction dissolved, or by development of a site-specific partition coefficient that relates the fraction dissolved to ambient background conditions such as pH, suspended load, or organic carbon.*"

The Discharger submitted a January 2007 *Metals Translator Monitoring Study – Copper, Lead, and Nickel* (Translator Study), which was developed in accordance with SIP and U.S. EPA guidance. In the Translator Study, the Discharger requested the use of site-specific metals translators for copper, nickel, and lead, applicable to Discharge Point 001. The Central Valley Water Board reviewed and approved the Translator Study and previous Orders R5-2007-0132-02 and R5-2013-0127-01 utilized the following site-specific metals translators for copper, lead, and nickel to calculate CTR criteria applicable at Discharge Point 001.

Table F-7. Site-Specific Metal Translators for Discharge Point 001

Constituent	Acute Translator	Chronic Translator
Copper	0.68	0.58
Lead	0.81	0.65
Nickel	0.78	0.71

The Discharger has not conducted site-specific translator studies for the discharge to the Conaway Ranch Toe Drain; however, site-specific metals translators at Discharge Point 001 have been applied at Discharge Point 002 because both discharge locations now receive the same treated effluent, versus the previous system that treated the waste stream with different treatment systems prior to discharge at their respective discharge locations.

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 for the remaining metals at Discharge Point 001 and 002.

Following completion of Facility upgrades, the character of the Facility's effluent has changed. In addition to hardness, there are several other water quality characteristics, including total organic carbon, TSS, and total dissolved solids, that may impact metals toxicity. Because the character of the effluent has changed since the Translator Study was conducted, this Order requires the Discharger to conduct a dissolved-to-total metal translator verification study to verify that the site-specific

translators for copper, lead, and/or nickel remain applicable to current effluent characteristics following completion of Facility upgrades.

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[1] and the CTR.[2] The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones.[3] Design flows for aquatic life criteria include the lowest 1-day flow with an average reoccurrence frequency of once in 10 years (1Q10) and the lowest average 7 consecutive day flow with an average reoccurrence frequency of once in 10 years (7Q10).[4] 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 3-year period, on average.[5] 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.[6] The CTR does not define the term "ambient," as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully comply with the CTR and SIP.

i. **Summary Findings**

At design discharge conditions, Willow Slough Bypass and the Conaway Ranch Toe Drain are 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 Sportsfishing 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).

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

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. § 131.38(c)(4)).

[3] 40 C.F.R. §131.38(c)(4)(ii)

[4] 40 C.F.R. §131.38(c)(2)(iii) Table 4

[5] 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

[6] 40 C.F.R. §131.38(c)(2)(i)

The ambient hardness for Willow Slough Bypass is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 110 mg/L to 430 mg/L based on applicable ambient data collected from 4 October 2013 through March 2018. The ambient hardness for Conaway Ranch Toe Drain is represented by the data in Figure F-2, below, which shows ambient hardness ranging from 100 mg/L to 480 mg/L based on applicable ambient data collected from April 2008 through February 2015.

Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving waters 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 110 mg/L (minimum) up to 430 mg/L (maximum) for Discharge Point 001 and within the range of 100 mg/L (minimum) up to 480 mg/L (maximum) for Discharge Point 002. Staff recommends that the Board use the ambient hardness values shown in Table F-8 following reasons.

(a) The ambient receiving water hardness values shown in Table F-8 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.

(b) The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP, and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-8 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.

(c) 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 Willow Slough Bypass, 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 WDR's that will result in the best practicable treatment or control (BPTC) 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.

(d) Using the ambient hardness values shown in Table F-8 is consistent with the CTR and SIP's requirements for developing metals criteria.

Table F-8. Summary of CTR Criteria for Hardness-dependent Metals – Discharge Point 001 and 002

CTR Metals	Ambient Hardness (mg/L)[2]	CTR Criteria (µg/L, total recoverable)[1]	
		Acute	Chronic
Copper	110	22[3]	17[3]
Chromium III	110	1,900	220
Cadmium	110 (acute) 110 (chronic)	5.0	2.7
Lead	110	88[3]	4.3[3]
Nickel	110	650[3]	79[3]
Silver	110	4.8	--
Zinc	110	130	130

[1] Metal criteria rounded to two significant figures in accordance with the CTR (40 C.F.R. section 131.38(b)(2)).
[2] The ambient hardness values in this table represent actual observed receiving water hardness measurements from the dataset shown in Figure F-1 and Figure F-2.
[3] Criteria calculated using site-specific dissolved to total metal translators.

ii. **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:

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

Where:

H = ambient hardness (as $CaCO_3$) [1]

WER = water-effect ratio

m, b = metal- and criterion-specific constants

The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions

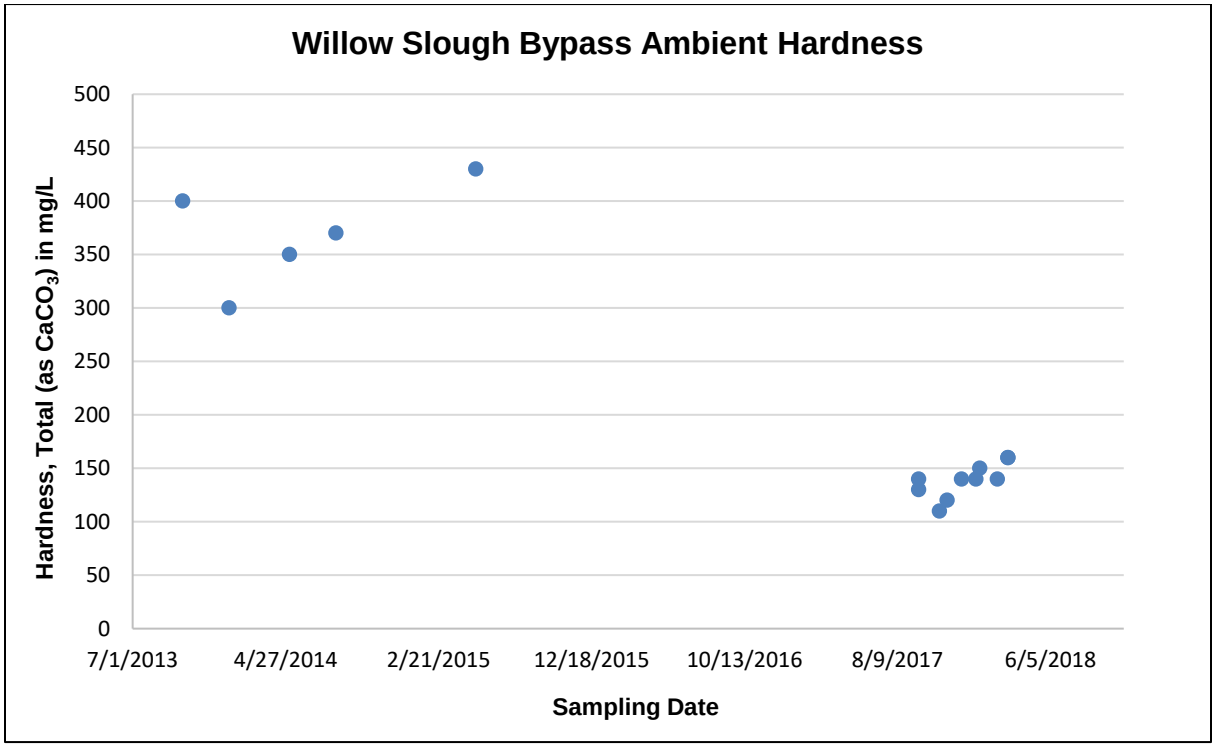
[1] For this discussion, all hardness values are expressed in mg/L as $CaCO_3$.

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 3-year period.[1] Design flows for aquatic life criteria include the 1Q10 and the 7Q10. Since Willow Slough Bypass is considered an effluent-dominated water body, the critical design flow is zero.

iii. **Ambient Conditions**

(a) **Discharge Point 001.** The ambient receiving water hardness within the Willow Slough Bypass varied from 110 mg/L to 430 mg/L, based on 15 samples from 4 October 2013 through March 2018 (see Figure F-1).

Figure F-1. Discharge Point 001 Observed Ambient Hardness Concentrations 110 mg/L – 430 mg/L

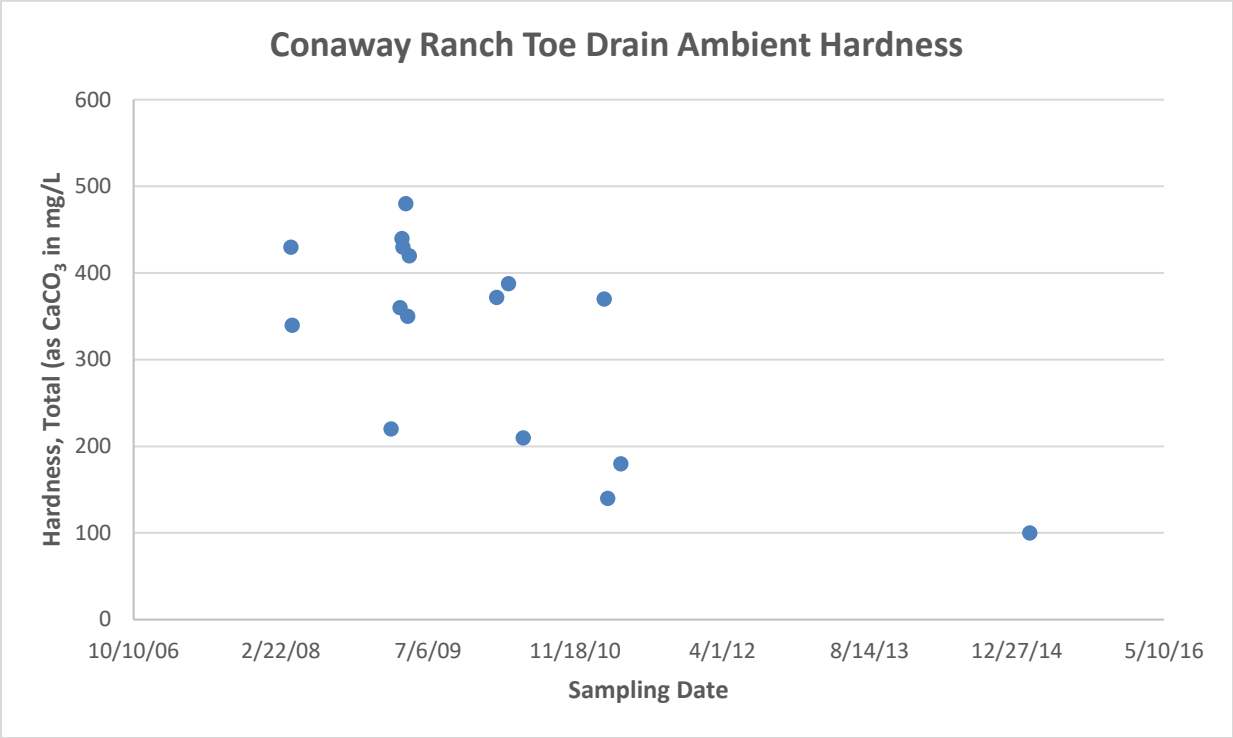


In this analysis, the entire range of ambient hardness concentrations shown in Figure F-1 were considered to determine the appropriate ambient hardness to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

(b) **Discharge Point 002.** The ambient receiving water hardness within the Conaway Ranch Toe Drain varied from 100 mg/L to 480 mg/L, based on 16 samples from 27 March 2008 through 9 February 2015 (see Figure F-2).

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

Figure F-2. Discharge Point 002 Observed Ambient Hardness Concentrations 100 mg/L – 480 mg/L



In this analysis, the entire range of ambient hardness concentrations shown in Figures F-1 (Discharge Point 001) and F-2 (Discharge Point 002) were considered to determine the appropriate ambient hardness values for Discharge Points 001 and 002 to calculate the CTR criteria and effluent limitations that are protective under all discharge conditions.

iv. **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.

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

Reasonable worst-case ambient conditions:

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

(b) "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.

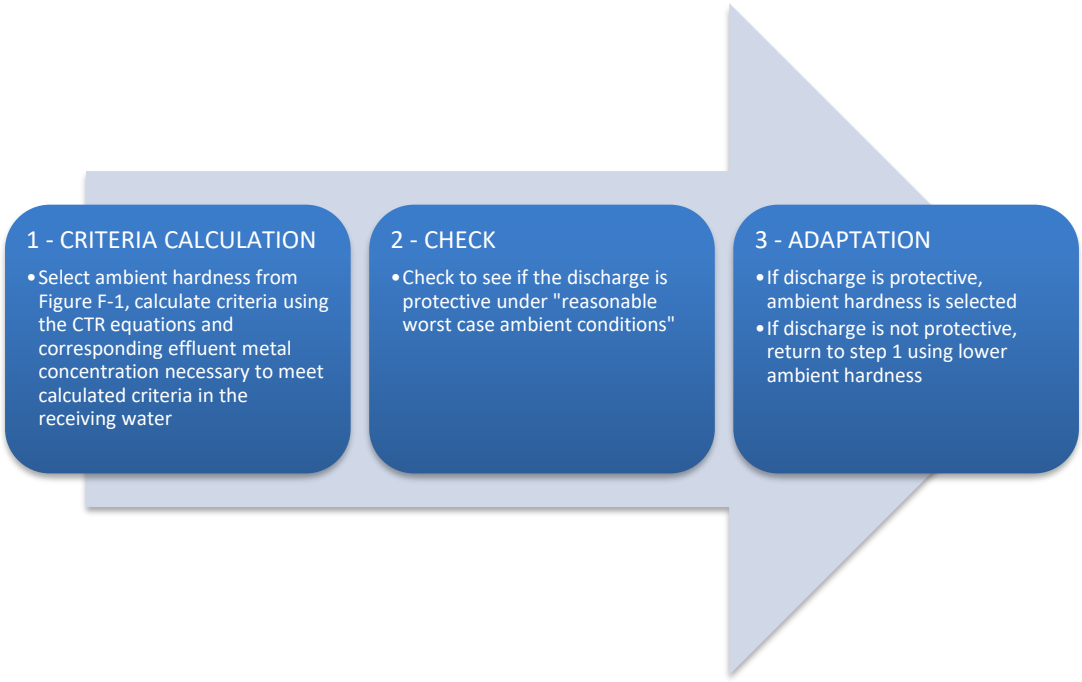
(c) "Low receiving water hardness." The minimum ambient receiving water hardness condition of 110 mg/L was selected to represent the reasonable worst case receiving water hardness value for the Willow Slough Bypass and the minimum ambient receiving water hardness condition of 100 mg/L was selected to represent the reasonable worst case receiving water hardness value for the Conaway Ranch Toe Drain.

(d) "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.

For lead and silver this default assumption is overly conservative and was not used in the evaluation for either Discharge Point 001 or 002. For example, at Discharge Point 001 the actual observed maximum background concentrations for lead and silver of 0.47 µg/L and 0.020 µg/L, respectively, are significantly lower than the CTR criteria calculated using the minimum ambient hardness of 110 mg/L (3.6 µg/L or lead and 4.8 µg/L for silver). Therefore, mixed downstream lead and silver concentrations were calculated assuming background concentrations for these pollutants are equal to the actual maximum concentrations observed within the receiving water. Based on this assumption, the design CTR criteria for lead and silver are expected to be protective under all ambient conditions.

Iterative approach. An iterative analysis has been used to select the ambient hardness values 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.



(a) CRITERIA CALCULATION. For each Discharge Point CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.[1] This should not be confused with an effluent limit. Rather, it is the Effluent Concentration Allowance (ECA), which is synonymous with the WLA 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*."[2] 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.

(b) CHECK. U.S. EPA's simple mass balance equation[3] 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.

(c) ADAPT. If step b results in:

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

(2) Receiving water metal concentration greater than CTR criteria, then return to step a, 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,

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

steps a through c 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.

v. **Results of Iterative Analyses**

For discharges at Discharge Point 001 and 002, the above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-8, above. Using these hardness values to calculate criteria, which are actual sample results collected in the receiving water, will result in effluent limitations that are protective under all ambient flow conditions. Cadmium and zinc are used as examples below to illustrate the results of the analysis. Tables F-9 and F-10 below summarize the numeric results of the three-step iterative approach for cadmium and zinc. As shown in the example tables, an ambient hardness value of 110 mg/L is used in the CTR equations to derive criteria and effluent limitations for cadmium and zinc. Then, under the "check" step, worst-case ambient receiving water conditions are used to test whether discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the above analysis, summarized in the tables below, show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-9 and F-10, below, summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

Table F-9. Verification of CTR Compliance for Cadmium

Receiving water hardness used to compute effluent limitations				**110 mg/L**
Effluent Concentration Allowance (ECA) for Cadmium[1]				**2.7 µg/L**
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			**Complies with CTR Criteria?**
	Hardness	**CTR Criteria (µg/L)**	**Ambient Cadmium Concentration[2] (µg/L)**	
1Q10	110	2.7	2.7	**Yes**
7Q10	110	2.7	2.7	**Yes**
Max receiving water flow	140	3.2	3.2	**Yes**

1 The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for cadmium as it demonstrates no reasonable potential for discharges at Discharge Point 001 and 002.

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

Table F-10. Verification of CTR Compliance for Zinc

Receiving water hardness used to compute effluent limitations				110 mg/L
Effluent Concentration Allowance (ECA) for Zinc[1]				130 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Zinc Concentration[2] (µg/L)	
1Q10	110	130	130	**Yes**
7Q10	110	130	130	**Yes**
Max receiving water flow	140	160	160	**Yes**

1 The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for zinc as it demonstrates no reasonable potential for discharges at Discharge Point 001 and 002.

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

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. section 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 WLA's 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 an 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 U.S. EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

a. **Constituents with Total Maximum Daily Loads (TMDL's).**
40 C.F.R. section 122.44(d)(1)(vii) provides: *"When developing water quality-based effluent limits under [§ 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 waste load allocation for the*

discharge prepared by the State and approved by EPA pursuant to [Total Maxiumum Daily Loads regulations]." U.S. EPA construes 40 C.F.R. section 122.44(d)(1)(vii)(B) to mean that "*when WLA's are available, they must be used to translate water quality standards into NPDES permit limits*." 54 Fed. Reg. 23868, 23879 (2 June 1989).

Willow Slough Bypass and the Conaway Ranch Toe Drain are subject to TMDL's for diazinon and chlorpyrifos and methylmercury, and WLA's under those TMDL's are available. The Central Valley Water Board developed WQBEL's for these pollutants pursuant to 40 C.F.R. section 122.44(d)(1)(vii), which does not require or contemplate an RPA.

i. **Diazinon and Chlorpyrifos**

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

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

The amendment states that "*The WLA's for all NPDES-permitted dischargers…shall not exceed the sum (S) of one (1) as defined below.*

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

Where:

C_D = diazinon concentration in µg/L of point source discharge for WLA…
C_C = chlorpyrifos concentration in µg/L of point source discharge for the WLA…
WQO_d = acute or chronic diazinon water quality objective in µg/L.
WQO_c = acute or chronic chlorpyrifos water quality objective in µg/L.

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

Appendix A of the Diazinon and Chlorpyrifos TMDL lists 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*." The Willow Slough Bypass and the Conaway Ranch Toe Drain are part of the Yolo Bypass. Therefore, the Diazinon and Chlorpyrifos TMDL is applicable at Discharge Points 001 and 002.

(b) **RPA Results.** Diazinon was not detected at EFF-001 based on five samples collected between September 2016 and March 2018. Diazinon was not detected in the upstream receiving water based on one sample collected between 4 October 2013 and March 2018.

Chlorpyrifos was not detected in effluent discharged at EFF-001 based on five samples collected between September 2016 and March 2018. Chlorpyrifos was not detected in the upstream receiving water based on one sample collected between 4 October 2013 and March 2018.

Although diazinon and chlorpyrifos were not detected in the effluent or receiving water, due to the TMDL for diazinon and chlorpyrifos in the Sacramento-San Joaquin Delta, WQBEL's for these constituents are required at Discharge Point 001 and 002. The TMDL WLA applies to all NPDES dischargers to Delta waterways and will serve as the basis for WQBEL's for this Facility.

(c) **WQBEL's.** WQBEL's for diazinon and chlorpyrifos are required for Discharge Points 001 and 002 based on the TMDL for diazinon and chlorpyrifos for Sacramento-San Joaquin Delta waterways. Therefore, this Order includes effluent limits at Discharge Points 001 and 002 calculated based on the WLA's contained in the TMDL, as follows:

(1) Average Monthly Effluent Limitation (AMEL)

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

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

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

(2) Average Weekly Effluent Limitation (AWEL)

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

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

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

(d) **Plant Performance and Attainability.** Diazinon and chlorpyrifos were not detected at EFF-001 following the completion of Facility upgrades. Therefore, based on available data representative of the effluent from the upgraded Facility, the Central Valley Water Board concludes that immediate compliance with these effluent limitations at Discharge Points 001 and 002 is feasible.

ii. **Mercury**

(a) **WQO.** The Basin Plan contains fish tissue objectives for all Sacramento-San Joaquin Delta waterways listed in Appendix 43 of the Basin Plan, which states, "*…the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length.*" The Delta Mercury Control Program contains aqueous methylmercury WLA's that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations

of methylmercury greater than 0.06 ng/L (the concentration of methylmercury in water to meet the fish tissue objective). For discharges to the Conaway Ranch Toe Drain at Discharge Point 002, the Facility is allocated 0.17 grams/year of methylmercury by 31 December 2030, as listed in Table IV-7B of the Basin Plan.

The Delta Mercury Control Program assigned a WLA for methylmercury that applies to the Willow Slough watershed, but it does not specify the amounts allocated to individual waterways within the watershed, including the Willow Slough Bypass. The allocation does not specify individual methylmercury sources upstream of the legal Delta boundary, nor does it assign WLA's for any point sources. Therefore, the WLA's included in the Delta Mercury Control Program for methylmercury are not applicable at Discharge Point 001. A mass loading effluent limitation has been retained from Order R5-2013-0127-01 to place a cap on the discharge of total mercury at Discharge Point 001.

The CTR contains a human health criterion of 51 ng/L for total mercury for waters from which only aquatic organisms are consumed, which is applicable to Discharge Points 001 and 002. However, in 40 C.F.R. part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through the use of the State's narrative criterion.*" In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

The State Water Board adopted Resolution 2017-0027 on 2 May 2017, which approved *Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions* (Statewide Mercury Provisions). The Statewide Mercury Provisions establish a Sport Fish Water Quality Objective of an average 0.2 mg/kg methylmercury fish tissue concentration within a calendar year for waters with the beneficial uses of commercial and sport fishing (COMM), tribal tradition and culture (CUL), wildlife habitat (WILD), and marine habitat (MAR). This fish tissue objective corresponds to a water column concentration of 12 ng/L of total mercury for flowing water bodies (e.g., rivers, creeks, streams, and waters with tidal mixing). As shown in Table F-4, the beneficial uses of Willow Slough Bypass and the Conaway Ranch Toe Drain include WILD; therefore, the Sport Fish Water Quality Objective is applicable. However, the mercury water quality objectives established in the Statewide Mercury Provisions do not supersede the site-specific numeric mercury water quality objectives established in the Basin Plan, and section IV.D.1 of the Statewide Mercury Provisions specify that the implementation provisions pertaining to do not apply to dischargers that discharge to receiving waters for which a mercury or methylmercury TMDL is established pertaining to the same beneficial use or uses. Consequently, this Order continues to implement the Basin Plan's Delta Mercury Control Program for the control of methylmercury in the receiving waters.

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

has been developed, to determine if a water quality-based effluent limitation is required in the Discharger's permit." (emphasis added)

The maximum effluent concentration (MEC) for mercury at EFF-001 was 1.9 ng/L based on 10 samples collected from September 2017 through March 2018. The maximum observed upstream receiving water mercury concentration was 4.7 ng/L based on one sample collected between 4 October 2013 and March 2018.

The MEC for methylmercury at EFF-001 was 0.020 ng/L based on four samples collected between September 2017 and March 2018. The maximum observed upstream receiving water methylmercury concentration was 0.070 ng/L based on one sample collected between 4 October 2013 and March 2018.

(1) **Discharge Point 001.** Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The discharge of mercury to surface waters in the Central Valley draining to the Sacramento-San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta.

(2) **Discharge Point 002.** Due to the TMDL for methylmercury in the Sacramento-San Joaquin Delta, WQBEL's for methylmercury are required at Discharge Point 002. The TMDL WLA applies to all NPDES dischargers to Delta waterways and will serve as the basis for WQBEL's at Discharge Point 002.

(c) **WQBEL's.**

(1) **Discharge Point 001.** Order R5-2013-0127-01 included a performance-based mass effluent limitation for mercury of 0.038 lbs/month. For this Order, the averaging period for the mass-based effluent limitation has been revised to be consistent with performance-based mass limitations assigned to other recently adopted permits in the region. Therefore, this Order contains a performance-based mass effluent limitation of 0.46 lbs/year for mercury based on the monthly mass limitation included in Order R5-2013-0127-01. This limitation is based on maintaining the mercury loading until a TMDL is established or U.S. EPA develops mercury standards that are protective of human health. If U.S. EPA develops new water quality standards for mercury, this Order may be reopened and the effluent limitations adjusted.

(2) **Discharge Point 002.** The Basin Plan's Delta Mercury Control Program includes WLA's for POTW's in the Delta, including discharges to the Conaway Ranch Toe Drain via Discharge Point 002. The Discharger states that the WLA of 0.17 grams/year presented in the Basin Plan for the City of Davis was erroneously calculated using a number of 149 discharge days per year, and instead should be have been calculated using 365 discharge days. The Basin Plan states, "*By 20 October 2020, at a public hearing, and after scientific peer review and public review process, the Regional Water Board shall review the Delta Mercury Control Program and* ***may*** *[emphasis added] consider modification of objectives,*

allocations, implementation provisions and schedules, and the Final Compliance Date." (Phase 1 Delta Mercury Control Program Review, page IV-33.17) Therefore, the calculation of the WLA may be reviewed during the Phase 1 Delta Mercury Control Program Review, prior to final adoption of the Delta Mercury Control Program WLA's. However, in accordance with 40 C.F.R. section 122.44(d)(1)(vii)(B) and the SIP, this Order contains a final WQBEL for methylmercury at Discharge Point 002 based on the WLA in the Basin Plan. Effective 31 December 2030, the total calendar annual methylmercury load discharged at Discharge Point 002 shall not exceed 0.17 grams.

(d) **Plant Performance and Attainability.**

(1) **Discharge Point 001.** The effluent limitation for mercury at Discharge Point 001 is based on Facility performance. Therefore, the Central Valley Water Board concludes that immediate compliance with this effluent limitation is feasible.

(2) **Discharge Point 002.** A compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in section VI.C.7.b of this Order for discharges at Discharge Point 002. The final WQBEL's for methylmercury are effective 31 December 2030.

b. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an in-stream 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 RPA's 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 (Al^{3+}) binding to negatively charged fish gills.

(a) **WQO.** The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of CTR section 131.38, 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 National Ambient Water Quality Criteria (NAWQC) and subsequent Correction, (2) site-specific conditions of Willow Slough Bypass and the Conaway Ranch Toe Drain, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, page IV.-17.00; see also, 40 C.F.R. section 122.44(d)(vi))

U.S. EPA NAWQC. U.S. EPA recommended the NAWQC aluminum acute criterion at 750 µg/L based on test waters with a pH of 6.5 to 9.0. U.S. EPA also recommended the NAWQC aluminum chronic criterion at 87 µg/L based on 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 percent mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98 percent 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 (pH 6.5-6.9) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation started upon hatching of eyed eggs of brook trout, and their weight and length were measured after 45 days and 60 days. The 60-day old brook trout showed 24 percent weight loss at 169 µg/L of aluminum and 4 percent 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 percent reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

Site-specific Conditions. U.S. EPA advises that a water effects ratio (WER) may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms when the pH and hardness conditions of

the receiving water are not similar to that of the test conditions.[1] Effluent and receiving water monitoring data indicate that the pH and hardness values of Willow Slough Bypass and the Conaway Ranch Toe Drain are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below. Therefore, the Central Valley Water Board does not expect aluminum to be as toxic in Willow Slough Bypass or the Conaway Ranch Toe Drain as in the previously described toxicity tests. The pH of Willow Slough Bypass upstream of Discharge Point 001 ranged from 6.6 to 8.6 based on 63 samples collected from 4 October 2013 through March 2018. The pH of the Conaway Ranch Toe Drain upstream of Discharge Point 002 ranged from 7.3 to 7.9 based on three samples collected from 4 October 2013 through March 2018. These water conditions typically are circumneutral pH where aluminum is predominately in the form of $Al(OH)_3$ and non-toxic to aquatic life. Hardness concentrations within Willow Slough Bypass upstream of Discharge Point 001 ranged from 300 mg/L to 430 mg/L, based on six samples collected from 4 October 2013 through March 2018. One sample collected within the Conaway Ranch Toe Drain upstream of Discharge Point 002 between 4 October 2013 and March 2018 exhibited a hardness reading of 100 mg/L. The hardness concentrations within Willow Slough Bypass and the Conaway Ranch Toe Drain are above the conditions, and thus less toxic, than the tests used to develop the NAWQC chronic criterion for aluminum.

Table F-11. Site-Specific Aluminum Toxicity Data

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Discharge Point 001 Effluent[1]	Willow Slough Bypass	Discharge Point 002 Effluent[1]	Conaway Ranch Toe Drain
pH	standard units	6.0 – 6.5	6.5 – 7.4	6.6 – 8.6	NA	7.3 – 7.9
Hardness, Total (as $CaCO_3$)	mg/L	12	110 – 160	300 - 430	NA	100
Aluminum, Total Recoverable	µg/L	87.2 – 390	6.5 – 24	570	NA	NA

NA – Not Available

1 Representative of effluent monitoring conducted from September 2017 through March 2018 following the completion of Facility upgrades.

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 Willow Slough Bypass and the Conaway Ranch Toe Drain are similar, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate for Willow Slough Bypass and the Conaway Ranch Toe Drain. As shown in the following table, all EC_{50}[2] toxicity study result values are at

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

[2] The effect concentration is a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious 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

concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters and in Willow Slough Bypass and the Conaway Ranch Toe Drain are less toxic (or less reactive) to aquatic species than demonstrated in the toxicity tests that U.S. EPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests U.S. EPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to Willow Slough Bypass or the Conaway Ranch Toe Drain.

Table F-12. Central Valley Region Site-Specific Aluminum Toxicity Data

Discharger	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
***Oncorhynchus mykiss* (rainbow trout)**					
Manteca	Surface Water/Effluent	124	>8,600	9.14	N/C
Auburn	Surface Water	16	>16,500	7.44	N/C
Modesto	Surface Water/Effluent	120/156	>34,250	8.96	>229
Yuba City	Surface Water/Effluent	114/164[1]	>8,000	7.60/7.46	>53.5
***Ceriodaphnia dubia* (water flea)**					
Auburn	Effluent	99	>5,270	7.44	>19.3
	Surface Water	16	>5,160	7.44	>12.4
Manteca	Surface Water/Effluent	124	>8,800	9.14	N/C
	Effluent	117	>8,700	7.21	>27.8
	Surface Water	57	7,823	7.58	25.0
	Effluent	139	>9,500	7.97	>21.2
	Surface Water	104	>11,000	8.28	>24.5
	Effluent	128	>9,700	7.78	>25.0
	Surface Water	85	>9,450	7.85	>25.7
	Effluent	106	>11,900	7.66	>15.3
	Surface Water	146	>10,650	7.81	>13.7
Modesto	Surface Water/Effluent	120/156	31,604	8.96	211
Yuba City	Surface Water/Effluent	114/164[1]	>8,000	7.60/7.46	>53.5
Placer County (SMD 1)	Effluent	150	>5,000	7.4 – 8.7	>13.7
***Daphnia magna* (water flea)**					
Manteca	Surface Water/Effluent	124	>8,350	9.14	N/C
Modesto	Surface Water/Effluent	120/156	>11,900	8.96	>79.6
Yuba City	Surface Water/Effluent	114/164[1]	>8,000	7.60/7.46	>53.5

[1] Hardness values may be biased high because the EDTA titrimetric method is subject to interferences that measure as hardness (barium, cadmium, lead, manganese, strontium, and zine will be measured as hardness) producing hardness numbers that are likely to be greater than the calculation of hardness based upon the ICP analysis of calcium and magnesium. Upstream receiving water hardness ranged from 30 to 50.9 mg/L as $CaCO_3$ between January 2008 and August 2011. Furthermore, the upstream receiving water hardness was 37 mg/L as $CaCO_3$ on 4 October 2005, 7 days prior to the Feasibility Assessment (first phase of a WER study) sample collection date of 11 October 2005. It is likely that matrix interferences from other metals were responsible for the unexpected hardness values reported by Pacific EcoRisk.

Applicable WQO's. This Order implements the Basin Plan's narrative toxicity objective for the protection of aquatic life using an acute (1-hour) criterion and chronic (4-day) criterion of 750 µg/L based on U.S. EPA's

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.

NAWQC and the discussion above. Order R5-2013-0127-01 included effluent limitations for aluminum at Discharge Points 001 and 002 based on the NAWQC criterion.

(b) **RPA Results.** The maximum observed effluent aluminum concentration at EFF-001 was 24 µg/L based on 11 samples collected from September 2017 through March 2018. Therefore, aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the NAWQC criteria and the effluent limitations for aluminum at Discharge Point 001 and Discharge Point 002 have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ii. **Cadmium**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for cadmium. These criteria for cadmium are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the effluent and receiving water. As described in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for cadmium in the effluent at Discharge Point 001 are 5.0 µg/L and 2.7 µg/L, respectively, as total recoverable. Order R5-2013-0127-01 included effluent limitations for cadmium at Discharge Point 001 based on the CTR criteria.

(b) **RPA Results.** Cadmium was not detected at EFF-001 based on five samples collected between September 2017 and March 2018. Cadmium was not detected in the upstream receiving water based on one sample collected between 4 October 2013 and March 2018. Therefore, cadmium in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life at Discharge Points 001 or 002, and the effluent limitations for cadmium at Discharge Point 001 have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Copper**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. As discussed in section IV.C.2.d of this Fact Sheet, site-specific translators were used to adjust criteria for copper at Discharge Point 001 and 002.

The applicable acute and chronic criteria for copper in the effluent at Discharge Point 001 and 002 are 22 µg/L and 17 µg/L, respectively, as total recoverable. Order R5-2013-0127-01 included effluent limitations for copper at Discharge Points 001 and 002 based on the CTR criteria.

(b) **RPA Results.** The MEC for copper at EFF-001 was 11 µg/L based on 11 samples collected from September 2017 through March 2018. The maximum observed upstream receiving water concentration was 6.2 µg/L based on one sample collected between 4 October 2013 and March 2018. The overland treatment system resulted in a MEC of 50 µg/L and 16.9 µg/L at Discharge Point 001 and 002, respectively, demonstrating a significant reduction in copper concentrations when effluent was directed through the wetlands.

Therefore, copper in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life and the effluent limitations for copper at Discharge Point 001 and 002 have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Cyanide**

(a) **WQO.** The CTR includes a chronic criterion of 5.2 µg/L for cyanide for the protection of freshwater aquatic life. Order R5-2013-0127-01 included effluent limitations for cyanide at EFF-001 based on the CTR chronic criterion for the protection of freshwater aquatic life.

(b) **RPA Results.** The MEC for cyanide at EFF-001 was 4.9 µg/L based on nine samples collected between September 2017 and March 2018. Cyanide was not detected in the upstream receiving water based on one sample collected on 9 May 2018. Therefore, cyanide in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life at Discharge Point 001 and 002, and the effluent limitations for cyanide at Discharge Point 001 have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

v. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that contains a narrative objective and numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA NAWQC for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. 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. The Central Valley Water Board is currently implementing the Central Valley Salinity Alternatives for Long-Term Sustainability (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. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

Previous Order R5-2007-0132-02 contained interim performance-based effluent limits for electrical conductivity. The interim limits allowed the Discharger time to conduct a site-specific study. The California Sportfishing Protection Alliance filed a petition against Order R5-2007-0132 claiming, in part, that the interim effluent limitation for electrical conductivity as an annual average did not adequately protect resources from instantaneous high levels of electrical conductivity. The State Water Board issued Order WQ-2008-0008 Corrected (Remand) remanding Order R5-2007-0132 to the Central Valley Water Board. The Remand concluded that the interim limit for electrical conductivity was appropriately established, but directed the Central Valley Water Board to consider the City of Woodland's site-specific electrical conductivity study as appropriate findings for calculating a final electrical conductivity effluent limitation without requiring additional studies by the Discharger.

The City of Woodland's site-specific electrical conductivity study developed site-specific criteria for electrical conductivity, boron, and fluoride for irrigated agriculture both inside and outside the Yolo Bypass. These site-specific criteria were 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 study found that a maximum electrical conductivity concentration of 1,400 µmhos/cm was protective of the dominant crops both inside and outside the Yolo Bypass, and therefore protective of agricultural beneficial uses.

In a letter to the Central Valley Water Board's NPDES Permitting Section dated 19 October 2011, the CV-SALTS Technical Advisory Committee (TAC) evaluated the applicability of the City of Woodland's data to the Discharger's study and recommended that the Discharger clearly delineate the areas that utilize the downstream receiving waters as agricultural supply, confirm the types of crops grown in these areas, investigate cropping patterns and growth cycles of crops, and identify the most salt-sensitive crop(s) to be protected. CV-SALTS made several other recommendations to the Discharger regarding the development of a site-specific study. Order R5-2013-0127-01 included effluent limitations for electrical conductivity at Discharge Points 001 and 002 based on the City of Woodland's site-specific electrical conductivity study.

(b) **RPA Results**

(1) **Chloride.** Chloride concentrations in the effluent atEFF-001 ranged from 120 mg/L to 160 mg/L based on four samples collected from September 2017 through March 2018. One background sample collected in Willow Slough Bypass upstream of EFF-001 between 4 October 2013 and March 2018 exhibited a chloride concentration of 150 mg/L. These levels do not exceed the NAWQC criteria for the protection of aquatic life.

(2) **Electrical Conductivity or Total Dissolved Solids.** As described above, the City of Woodland's site-specific electrical conductivity study found that an electrical conductivity concentration of 1,400 µmhos/cm was protective of the agricultural beneficial use both inside and outside the Yolo Bypass. A review of the Discharger's monitoring reports following the completion of Facility upgrades show an average effluent electrical conductivity concentration of 962 µmhos/cm at EFF-001, with a range from 796 µmhos/cm to 1,320 µmhos/cm. The average electrical conductivity concentration at EFF-001 was compared to the site-specific electrical conductivity water quality objective of 1,400 µmhos/cm for the purposes of the RPA. This level does not exceed the site-specific electrical conductivity water quality objective. Receiving water data upstream of EFF-001 averaged 1,545 µmhos/cm.

Out of two samples, the maximum effluent total dissolved solids concentration at EFF-001 of 574 mg/L was measured on 14 March 2018. Upstream receiving water data is not available for total dissolved solids. Total dissolved solids were not monitored at EFF-002 following the completion of Facility upgrades since no discharge occurred. There are no applicable water quality criteria for total dissolved solids at Discharge Points 001 or 002; thus, no RPA was required.

(3) **Sulfate.** Sulfate concentrations in the effluent at EFF-001 ranged from 49 mg/L to 59 mg/L, with an average of 55 mg/L, based on four samples collected between September 2017 and March 2018. These levels do not exceed the Secondary MCL recommended level. Sulfate was not detected in the upstream receiving water based on three samples collected between December 2017 and February 2018. One background sample collected in Willow Slough Bypass upstream of Discharge Point 001 between 4 October 2013 and March 2018 exhibited a sulfate concentration of 58 mg/L. Effluent and upstream receiving water for sulfate following the completion of Facility upgrades at Discharge Point 002 is not available. There are no applicable water quality criteria for sulfate at Discharge Points 001 or 002; thus, no RPA was required.

The Discharger has made diligent efforts to reduce salinity levels in effluent discharged to the receiving waters. During the term of Order R5-2013-0127-01, the Discharger completed a regional surface water supply project to improve the Facility's municipal water supply through conjunctive use with the existing groundwater supply. The Woodland Davis Clean Water Agency potable water plant began delivering surface water to the Facility in June 2016. Based on effluent data collected since the transition to a new water supply and completion of Facility upgrades (September 2017 through March 2018), the Facility does not exhibit reasonable potential to exceed the site-specific electrical conductivity water quality objective of 1,400 µmhos/cm for the protection of agriculture at Discharge Point 001 and 002. Therefore, the effluent limitations for electrical conductivity at Discharge Point 001 and 002 have not been retained in this Order. However, since the Discharger discharges to Willow Slough Bypass and the Conaway Ranch Toe Drain within the Yolo

Bypass, and the Yolo Bypass is considered part of the Sacramento-San Joaquin Delta when flooded, 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, in order to ensure the Discharger will continue to control the discharge of salinity, this Order requires the Discharger to continue to implement a salinity evaluation and minimization plan.

vi. **Selenium**

(a) **WQO.** The CTR includes maximum 1-hour average and 4-day average criteria of 5.0 µg/L and 20 µg/L, respectively, for total recoverable selenium for the protection of freshwater aquatic life. Order R5-2013-0127-01 included effluent limitations for selenium at Discharge Points 001 and 002 based on the CTR criteria.

(b) **RPA Results.** The MEC for selenium at EFF-001 was 2.5 µg/L based on 11 samples collected from September 2017 through March 2018. The maximum observed upstream receiving water concentration was 1.4 µg/L based on one sample collected between 4 October 2013 and March 2018. Therefore, selenium in the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life at Discharge Point 001 and 002, and the effluent limitations for selenium at Discharge Point 001 and 002 have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

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 at Discharge Point 001 and 002 for ammonia, BOD_5, chlorine residual, pH, total coliform organisms, and TSS. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Ammonia**

(a) **WQO.** The 1999 U.S. EPA 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.

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").[1] 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

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

tested for development of the 2013 Criteria may not be present in some Central Valley waterways. The 2013 Criteria document therefore states that, "*unionid mussel species are not prevalent in some waters, such as the arid west …*" and provides that, "*In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria dataset to better represent the species present at the site.*"

The Central Valley Water Board issued a 3 April 2014 *California Water Code section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter to the Central Valley Water Board indicating their participation in the Central Valley Clean Water Association (CVCWA) 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 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. 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. Because Willow Slough Bypass and the Conaway Ranch Toe Drain have a potential beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in Willow Slough Bypass and the Conaway Ranch Toe Drain is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.0 at Discharge Points 001 and 002 based on the Discharger's request for a more stringent maximum effluent pH limit following completion of Facility upgrades to tertiary treatment. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.62 mg/L.

A chronic criterion was calculated for each day when paired pH and temperature data were measured using downstream receiving water data for pH and temperature. Rolling 30-day average criteria were calculated from downstream receiving water data using the criteria calculated for each day and the minimum observed 30-day average criterion was

established as the applicable 30-day average chronic criterion, or 30-day CCC. For discharges at Discharge Point 001, the most stringent 30-day CCC was 1.36 mg/L (as N) based on downstream receiving water pH and temperature data collected from 4 October 2013 through May 2018. The 4-day average concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.36 mg/L (as N) at Discharge Point 001, the 4-day average concentration that should not be exceeded is 3.39 mg/L (as N).

There is no new information providing reason to calculate updated ammonia criteria for discharges to the Conaway Ranch Toe Drain. Therefore, for discharges at Discharge Point 002, the applicable 30-day CCC and 4-day CCC have been retained from Order R5-2013-0127-01.

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that are harmful to aquatic life and exceed the Basin Plan narrative toxicity objective. Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 and specifies that "…*the value of "n" (assumed monitoring frequency) used in the AML calculation should not be less than the averaging period upon which the criterion value is based*".[1] Therefore, while the LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA and AMEL multiplier corresponding to the 30-day CCC was calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the AWEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

The temperature of the effluent and receiving waters varies based on the season. Therefore, this Order establishes seasonal effluent limitations for ammonia at Discharge Points 001 and 002 from 1 March through 31 October and 1 November through 29 February.

(1) **Discharge Point 001.** The seasonal AMEL's calculated based on effluent ammonia data at Discharge Point 001 collected from September 2017 through March 2018 are less stringent compared to the AMEL's established in Order R5-2013-0127-01. Therefore, in order to avoid backsliding in accordance with sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l), this Order retains the AMEL's for ammonia established in Order R5-2013-0127-01 at Discharge Point 001 of 1.3 mg/L from 1 March through 31 October and 1.9 mg/L from 1 November through 29 February. In accordance with 40 C.F.R. section 122.45(d), which requires AMEL's and AWEL's for POTW's unless impracticable, this Order replaces the seasonal MDEL's at Discharge Point 001 with AWEL's of 1.9 mg/L from

[1] 64 FR 71974

1 March through 31 October and 3.8 mg/L from 1 November through 29 February.

(2) **Discharge Point 002.** This Order retains the AMEL's for ammonia established in Order R5-2013-0127-01 at Discharge Point 002 of 1.5 mg/L from 1 March through 31 October and 2.3 mg/L from 1 November through 29 February. In accordance with 40 C.F.R. section 122.45(d), which requires AMEL's and AWEL's for POTW's unless impracticable, this Order replaces the seasonal MDEL's at Discharge Point 002 with AWEL's of 3.9 mg/L from 1 March through 31 October and 4.9 mg/L from 1 November through 29 February.

(d) **Plant Performance and Attainability.** The upgraded Facility is designed to provide tertiary treatment and fully nitrify the wastewater. Therefore, the Central Valley Water Board finds that immediate compliance with the final effluent ammonia limits at Discharge Point 001 and 002 is feasible.

ii. **Chlorine Residual**

(a) **WQO.** U.S. EPA developed NAWQC for the 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 waters. Reasonable potential therefore exists and effluent limits are required at Discharge Points 001 and 002.

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

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

the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data*." With regard to POTW's, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. Although the Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to Willow Slough Bypass and the Conaway Ranch Toe Drain, the existing chlorine use and the potential for chlorine to be discharged provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) **WQBEL's.** The TSD contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to AMEL's and MDEL's based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 mg/L and 0.019 mg/L, respectively, at Discharge Points 001 and 002 based on U.S. EPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for the protection of aquatic life.

(d) **Plant Performance and Attainability.** The Discharger uses sodium bisulfate to dechlorinate the effluent prior to discharge to Willow Slough Bypass or the Conaway Ranch Toe Drain. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Pathogens**

(a) **WQO.** The State Water Board Division of Drinking Water (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 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 California Water Code section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL's are required at Discharge Points 001 and 002.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 these non-priority pollutant constituents.

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 Willow Slough Bypass and the Conaway Ranch Toe Drain include water contact recreation and agricultural irrigation supply, and there is, at times, less than 20:1 dilution in Willow Slough Bypass and the Conaway Ranch Toe Drain. 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 at Discharge Points 001 and 002.

(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 at Discharge Points 001 and 002.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD_5, total coliform organisms, and TSS at Discharge Points 001 and 002 and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving waters. 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 at Discharge Points 001 and 002 are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving waters. 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 and AWEL's for BOD_5 and TSS of 10 mg/L and 15 mg/L, respectively, at Discharge Points 001 and 002, which are technically based on the capability of a tertiary system.

(d) **Plant Performance and Attainability.** The Facility provides tertiary treatment and utilizes a chlorine disinfection system that is designed to achieve Title 22 criteria. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible for tertiary treated discharges at Discharge Points 001 and 002.

iv. **pH**

(a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5.*"

(b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH, which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving waters. Therefore, reasonable potential exists for pH and WQBEL's are required at Discharge Points 001 and 002.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 266 samples taken from September 2017 through March 2018, the maximum pH reported at Discharge Point 001 following the completion of Facility upgrades was 7.4 and the minimum was 6.5. Discharges at Discharge Point 002 have not occurred since the completion of Facility upgrades; therefore, no effluent data is available to conduct an RPA for this constituent. 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 waters. Therefore, WQBEL's for pH at Discharge Points 001 and 002 are required in this Order.

(c) **WQBEL's.** An effluent limitation for pH of 6.5 as an instantaneous minimum is included in this Order for Discharge Points 001 and 002 based on the protection of the Basin Plan objective for pH. Previous Orders R5-2007-0132-02 and R5-2013-0127-01 included a more stringent instantaneous maximum pH limitation of 8.0, as requested by the Discharger, following completion of Facility upgrades to implement tertiary treatment. Effluent data collected following completion of Facility upgrades indicates that effluent pH was consistently below 8.0. Therefore, this Order retains the instantaneous maximum effluent pH limitation of 8.0 from Order R5-2013-0127-01 at Discharge Points 001 and 002.

(d) **Plant Performance and Attainability.** The Central Valley Water Board concludes that immediate compliance with the effluent limitations at Discharge Points 001 and 002 is feasible following the completion of Facility upgrades.

4. WQBEL Calculations

a. This Order includes WQBEL's for ammonia, BOD_5, chlorine residual, diazinon and chlorpyrifos, mercury, pH, total coliform organisms, and TSS at Discharge Point 001. This Order includes WQBEL's for ammonia, BOD_5, chlorine residual, diazinon and chlorpyrifos, methylmercury, pH, total coliform organisms, and TSS at Discharge Point 002. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. **Effluent Concentration Allowance (ECA).** 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:

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

where:

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

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

c. **Primary and Secondary MCL's.** 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 an 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 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 ECA's are converted to equivalent LTA's (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
Discharge Points 001 and 002

Table F-13. Summary of Water Quality-Based Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	--	--	--
Priority Pollutants						
Mercury, Total Recoverable	lbs/year	0.46[1]	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L[2]	1.3	1.9	--	--	--
	mg/L[3]	1.9	3.8	--	--	--
	lbs/day[2,4]	81	120	--	--	--
	lbs/day[3,4]	120	240	--	--	--
Chlorine, Total Residual	mg/L	--	0.011[5]	0.019[6]	--	--
Chlorpyrifos	µg/L	[7]	[8]	--	--	--
Diazinon	µg/L	[7]	[8]	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[9]	23[10]	--	240

1 For a calendar year, the total annual mass discharge of total mercury shall not exceed 0.46 pounds.
2 Applicable for discharges from 1 March through 31 October.
3 Applicable for discharges from 1 November through 29 February.
4 Based on an average dry weather flow of 7.5 MGD.
5 Applied as a 4-day average effluent limitation.
6 Applied as a 1-hour average effluent limitation.
7 Average Monthly Effluent Limitation
$S_{AMEL} = \frac{C_{D\,M-AVG}}{0.079} + \frac{C_{C\,M-AVG}}{0.012} \leq 1.0$
$C_{D\,M-AVG}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\,M-AVG}$ = average monthly chlorpyrifos effluent concentration in µg/L.
8 Average Weekly Effluent Limitation
$S_{AWEL} = \frac{C_{D\,W-AVG}}{0.14} + \frac{C_{C\,W-AVG}}{0.021} \leq 1.0$
$C_{D\,W-AVG}$ = average weekly diazinon effluent concentration in µg/L.
$C_{C\,W-AVG}$ = average weekly chlorpyrifos effluent concentration in µg/L.
9 Applied as a 7-day median effluent limitation.
10 Not to be exceeded more than once in any 30-day period.

Table F-14. Summary of Water Quality-Based Effluent Limitations – Discharge Point 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	--	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L[2]	1.5	3.9	--	--	--
	mg/L[3]	2.3	4.9	--	--	--
	lbs/day[1,2]	94	240	--	--	--
	lbs/day[1,3]	140	310	--	--	--
Chlorine, Total Residual	mg/L	--	0.011[4]	0.019[5]	--	--
Chlorpyrifos	µg/L	[6]	[7]	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Diazinon	µg/L	[6]	[7]	--	--	--
Methylmercury	grams/year	0.17[8]	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[9]	23[10]	--	240

1 Based on an average dry weather flow of 7.5 MGD.
2 Applicable for discharges from 1 March through 31 October.
3 Applicable for discharges from 1 November through 29 February.
4 Applied as a 4-day average effluent limitation.
5 Applied as a 1-hour average effluent limitation.
6 Average Monthly Effluent Limitation
$S_{AMEL} = \frac{C_{D\,M-AVG}}{0.079} + \frac{C_{C\,M-AVG}}{0.012} \leq 1.0$
$C_{D\,M-AVG}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\,M-AVG}$ = average monthly chlorpyrifos effluent concentration in µg/L.
7 Average Weekly Effluent Limitation
$S_{AWEL} = \frac{C_{D\,W-AVG}}{0.14} + \frac{C_{C\,W-AVG}}{0.021} \leq 1.0$
$C_{D\,W-AVG}$ = average weekly diazinon effluent concentration in µg/L.
$C_{C\,W-AVG}$ = average weekly chlorpyrifos effluent concentration in µg/L.
8 The effluent calendar year annual methylmercury load shall not exceed 0.17 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.
9 Applied as a 7-day median effluent limitation.
10 Not to be exceeded more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

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

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) The Basin Plan also states that, *"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…*"

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

characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Therefore, acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "*Guidance for NPDES Permit Issuance,*" dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Consistent with Order R5-2013-0127-01, effluent limitations for acute toxicity at Discharge Points 001 and 002 have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Order R5-2013-0127-01 included narrative chronic toxicity effluent limitations at Discharge Points 001 and 002. Table F-15, below, includes chronic WET testing performed by the Discharger on Discharge Point 001 effluent from September 2017 through March 2018. 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 at Discharge Point 001.

Table F-15. Whole Effluent Chronic Toxicity Testing Results – Discharge Point 001

Date	**Fathead Minnow** *Pimephales promelas*		**Water Flea** *Ceriodaphnia dubia*		**Green Algae** *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
19 September 2017[1]	1	1	1	>8	1
19 September 2017	--	--	1	1	--
14 November 2017[1]	1	1	--	--	1
16 December 2017[1,2]	--	--	1	1	--
16 December 2017[1,3]	--	--	1	1	--
16 December 2017[2]	--	--	1	1	--
16 December 2017[3]	--	--	1	1	--
22 February 2018	--	--	1	>8	--
22 February 2018[2,4]	--	--	1	>8	--
22 February 2018[3,4]	--	--	1	>8	--
16 March 2018[2,4]	--	--	1	1.3	--
16 March 2018[3,4]	--	--	1	1.3	--

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
16 March 2018[2,4,5]	--	--	1	1	--
16 March 2018[3,4,5]	--	--	1	1	--
16 March 2018[2,4,6]	--	--	1	2	--
16 March 2018[3,4,6]	--	--	1	2	--
16 March 2018[4,7]	--	--	1	8	--
16 April 2018	1	1	--	--	1
16 April 2018[2]	--	--	1	1.3	--
16 April 2018[3]	--	--	1	1.3	--
16 April 2018[4]	--	--	1	1	--
16 April 2018[8]	1	1	1	1	1
16 April 2018[9]	--	--	1	1	--
23 July 2018	1	1	1	1	1
13 August 2018	--	--	1	1.3	--
13 August 2018[8]	--	--	1	1	--
13 August 2018[9]	--	--	1	1	--

1 Chronic WET tests conducted using unfiltered effluent.
2 Analyses exclude outliers.
3 Analyses include outliers.
4 Chronic WET tests conducted using effluent samples collected upstream of chlorine disinfection.
5 Chronic WET tests conducted using effluent samples collected on 21 February 2018.
6 Chronic WET tests conducted using effluent samples collected on 23 February 2018.
7 Chronic WET tests conducted using effluent samples collected on 26 February 2018.
8 Chronic WET tests conducted at RSW-001U.
9 Chronic WET tests conducted at RSW-001D.

i **RPA.** No dilution has been granted for chronic WET. In September 2017, the Discharger began operation of their tertiary treatment system that completely replaced their equivalent to secondary overland flow treatment system. There has been a significant learning curve for plant operators as they have been adjusting to the new treatment system, for instance refining the sodium hypochlorite and sodium bisulfate doses for managing the chlorine disinfection system. The maximum chronic toxicity result after startup of the new treatment plant was >8 TUc on 22 February 2018 with a percent effect of 42 percent at 100 percent effluent for *Ceriodaphnia dubia* reproduction. On 11 April 2018, Central Valley Water Board staff sent confirmation to the Discharger to initiate a TRE based on accelerated monitoring conducted on 19 September 2017, 16 December 2017, and 22 February 2018.

TRE Monitoring Event #1 occurred on 16 April 2018 and resulted in 1.3 TUc with a percent effect of 47 percent at 100 percent effluent. Results from concurrent chronic WET testing on the upstream and downstream receiving waters resulted in 1 TUc for both cases and demonstrates that chronic toxicity observed in the effluent has not translated to chronic toxicity in the receiving water. The Discharger also conducted a TIE using effluent samples from the first TRE monitoring event; however, the results were inconclusive since the baseline effluent toxicity was determined to be not toxic.

TRE Monitoring Event #2 occurred on 23 July 2018 and resulted in 1.0 TUc for *Ceriodaphnia dubia* reproduction at Discharge Point 001.

TRE Monitoring Event #3 was conducted on 13 August 2018 and resulted in 1.3 TUc for *Ceriodaphnia dubia* reproduction with a percent effect of 40% at Discharge Point 001. However, the Discharger informed the Central Valley Water Board that pump replacement within the plant caused the primary clarifier to become septic. The replacement of the pump and subsequent septic status of the primary clarifier are not representative of normal operations, so TRE Monitoring Event #3 is not considered representative of the Facility's performance. Also, construction associated with the slip lining of 1.2 miles of the collection system was occurring upstream in the collection system that resulted in a significant amount of grout being removed from the primary treatment system. Also, results from concurrent chronic WET testing on the upstream and downstream receiving waters resulted in 1 TUc for both cases and demonstrates that chronic toxicity observed in the effluent has not translated to chronic toxicity in the receiving water.

For the following reasons there is insufficient data to determine whether reasonable potential for chronic toxicity exists:

- Chronic toxicity tests may have been affected by the startup period since the upgrades were completed recently and Facility staff are still adjusting to a whole new plant.
- Atypical maintenance (pump replacement) was conducted at the Facility that caused a major plant upset (lasting several weeks).
- Upstream slip lining construction project is, which began in June 2018 and is projected to finish in October 2018, could potentially cause toxic effects.
- The Discharger has demonstrated that the chronic toxicity has not been observed in the receiving water through TRE Monitoring Events #1 and 3.
- The Discharger has upgraded to a tertiary treatment system just over a year ago.
- A water improvement project was completed within the last three years that significantly changed the makeup of the source water.

The existing effluent limits in Order R5-2013-0127-01 are being carried forward in this Order because data collected after the startup of the new Facility in September 2017 does not conclusively demonstrate that reasonable potential does or does not exist; therefore, removal or modification of these effluent limitations would not be in accordance with federal anti-backsliding regulations.

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 have been established in this Order for ammonia at Discharge Points 001 and 002 because it is an oxygen-demanding substance. In addition, mass-based effluent limits for mercury at Discharge Point 001 and Discharge Point 002, respectively, have been established in this Order because mercury are bioaccumulative substances. This Order also establishes mass-based limits for methylmercury at Discharge Point 002 in accordance with the Delta Methylmercury Control Program. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations were calculated based upon the design flow (average dry weather flow) in Prohibition III.F of this Order.

2. Averaging Periods for Effluent Limitations

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

3. Satisfaction of Anti-Backsliding Requirements

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for aluminum, BOD_5, cadmium, copper, electrical conductivity, selenium, and TSS at Discharge Point 001, and effluent limitations for aluminum, BOD_5, copper, electrical conductivity, selenium, and TSS at Discharge Point 002. The effluent limitations for these pollutants are less stringent than those in Order R5-2013-0127-01. 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 WQBEL's "*except in compliance with section 303(d)(4).*" CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

   i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLA's will assure the attainment of such water quality standards.

   ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

   Willow Slough Bypass, to which effluent from the Facility is discharged at Discharge Point 001, is considered an attainment water for aluminum, BOD_5, cadmium, copper, electrical conductivity, and TSS. Conaway Ranch Toe Drain, to which effluent from the Facility is discharged at Discharge Point 002, is considered an attainment water for aluminum, BOD_5, copper, selenium, and TSS. Willow Slough Bypass and the Conaway Ranch Toe Drain are considered attainment waters for

the pollutants listed above because the receiving waters are not listed as impaired on the 303(d) list for these constituents.[1] As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the effluent limitations for cadmium and cyanide at Discharge Point 001, aluminum, copper, electrical conductivity, and selenium at Discharge Points 001 and 002, and removal of the maximum daily and mass-based effluent limitations for BOD_5 and TSS at Discharge Points 001 and 002 from Order R5-2013-0127-01 meet 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 section 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 that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and that would have justified the application of a less-stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3 of this Fact Sheet, updated information that was not available at the time Order R5-2013-0127-01 was issued indicates that aluminum, cadmium, copper, electrical conductivity, and selenium do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water for discharges at Discharge Point 001 and 002. The updated information that supports the removal of effluent limitations for these constituents includes the following:

i. **Aluminum.** Effluent monitoring data collected between September 2017 and March 2018 and receiving water monitoring data collected between 4 October 2013 and March 2018 indicates that aluminum in the discharge at Discharge Point 001 and 002 does not exhibit reasonable potential to cause or contribute to an exceedance of U.S. EPA's NAWQC.

ii. **Cadmium.** Effluent monitoring data collected between September 2017 and March 2018 and receiving water monitoring data collected between 4 October 2013 and March 2018 indicates that cadmium in the discharge at Discharge Point 001 does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

iii. **Copper.** Effluent monitoring data collected between September 2017 and March 2018 and receiving water monitoring data collected between 4 October 2013 and March 2018 indicates that copper in the discharge at Discharge Point 001 and 002 does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

iv. **Cyanide.** Effluent monitoring data collected between September 2017 and May 2018 and receiving water monitoring data collected between 4 October 2013 and May 2018 indicates that cyanide in the discharge at Discharge Point 001 does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

v. **Electrical Conductivity.** Effluent monitoring data collected between September 2017 and March 2018 and receiving water monitoring data collected between 4 October 2013 and March 2018 indicates that electrical

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

conductivity in the discharge at Discharge Point 001 and 002 does not exhibit reasonable potential to cause or contribute to an exceedance of the City of Woodland's site-specific electrical conductivity water quality objective for the protection of agriculture.

vi. **Selenium.** Effluent monitoring data collected between September 2017 and March 2018 and receiving water monitoring data collected between 4 October 2013 and March 2018 indicates that selenium in the discharge at Discharge Point 001 and 002 does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

c. **Flow**. Order R5-2013-0127-01 included flow as an effluent limit at Discharge Points 001 and 002 based on the Facility design flow. In accordance with Order R5-2013-0127-01, compliance with the flow limit was calculated using the average daily flow over three consecutive dry weather months. 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. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

4. Antidegradation Policies

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

This Order removes effluent limitations for cadmium at Discharge Point 001 and aluminum, copper, electrical conductivity, and selenium at Discharge Points 001 and 002 based on updated information, as described in sections IV.C.3 and IV.D.3 of this Fact Sheet. The removal of these WQBEL's will not result in a decrease in the level of treatment or control, or a reduction in water quality. Therefore, the Central Valley Water Board finds that the removal of the effluent limitations for aluminum, cadmium, copper, electrical conductivity, and selenium does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

This Order also removes MDEL's and mass-based effluent limitations for BOD_5 and TSS at Discharge Points 001 and 002 based on 40 C.F.R part 122.45(d) and (f), and as described further in section IV.D.3 of this Fact Sheet. The removal of MDEL's and mass-based effluent limits for BOD_5 and TSS will not result in a decrease in the level of treatment or control, or a reduction in water quality because the WQBEL's for BOD_5 and TSS are based on the technical capability of the tertiary process to meet Title 22, or equivalent, disinfection requirements required to protect the beneficial uses of the receiving waters. This is unchanged from the previous

permit. Furthermore, both concentration-based AMEL's and AWEL's remain for BOD_5 and TSS at Discharge Points 001 and 002, as well as an average daily discharge flow prohibition that limits the amount of flow that can be discharged daily at Discharge Points 001 and 002. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and permitted average dry weather flow by a conversion factor to determine the mass-based effluent limitations. Therefore, the Central Valley Water Board finds that the removal of MDEL's and mass-based effluent limits for BOD_5 and TSS at Discharge Points 001 and 002 does not result in an allowed increase in pollutants or any additional degradation of the receiving waters. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Antidegradation Policy.

b. **Groundwater.** The Discharger utilizes wetlands. Domestic wastewater contains constituents such as total dissolves solids, electrical conductivity, pathogens, nitrates, organics, metals, and BOD_5. Percolation from the wetlands may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with the State Antidegradation Policy. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the state of California. Some degradation of groundwater by the Discharger is consistent with the State Antidegradation Policy provided that:

   i. The degradation is limited in extent;

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

   iii. The Discharger minimizes the degradation by fulling implementing, regularly maintaining, and optimally operating BPTC measures; and

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

   Groundwater limitations for total coliform organisms, nitrate, and pH have been included in this Order for protection of the beneficial uses of groundwater.

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, pH, and TSS. Restrictions on these constituents are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. For BOD_5, pH, and TSS, both technology-based effluent limitations and WQBEL's are applicable. The more stringent of these effluent limitations are implemented by this Order. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the

extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBEL's 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 Points 001 and 002

Table F-16. Summary of Final Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP
Total Suspended Solids	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Mercury, Total Recoverable	lbs/month	0.46[2]	--	--	--	--	PB
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L[3]	1.3	1.9	--	--	--	NAW QC
	mg/L[4]	1.9	3.8	--	--	--	
	lbs/day[3,5]	81	120	--	--	--	
	lbs/day[4,5]	120	240	--	--	--	
Chlorine, Total Residual	mg/L	--	0.011[6]	0.019[7]	--	--	NAW QC
Chlorpyrifos	µg/L	[8]	[9]	--	--	--	TMDL
Diazinon	µg/L	[8]	[9]	--	--	--	TMDL
Total Coliform Organisms	MPN/100 mL	--	2.2[10]	23[11]	--	240	Title 22
Acute Toxicity	% survival	--	--	70[12]/90[13]	--	--	BP
Chronic Toxicity	TUc	--	--	[14]	--	--	BP

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

1 TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 C.F.R part 133.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
PB – Based on Facility performance.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
TMDL – Based on the WLA's in the applicable TMDL.
Title 22 – Based on CA Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2 For a calendar year, the total annual mass discharge of total mercury shall not exceed 0.46 pounds.

3 Applicable for discharges from 1 March through 31 October.

4 Applicable for discharges from 1 November through 29 February.

5 Based on an average dry weather flow of 7.5 MGD.

6 Applied as a 4-day average effluent limitation.

7 Applied as a 1-hour average effluent limitation.

8 Average Monthly Effluent Limitation

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

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

9 Average Weekly Effluent Limitation

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

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

10 Applied as a 7-day median effluent limitation.

11 Not to be exceeded more than once in any 30-day period.

12 70% minimum of any one bioassay.

13 90% median for any three consecutive bioassays.

14 There shall be no chronic toxicity in the effluent discharge.

Table F-17. Summary of Final Effluent Limitations – Discharge Point 002

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP
Total Suspended Solids	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L[3]	1.5	3.9	--	--	--	NAWQC
	mg/L[4]	2.3	4.9	--	--	--	
	lbs/day[2,3]	94	240	--	--	--	
	lbs/day[2,4]	140	310	--	--	--	

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Chlorine, Total Residual	mg/L	--	0.011[5]	0.019[6]	--	--	NAWQC
Chlorpyrifos	µg/L	[7]	[8]	--	--	--	TMDL
Diazinon	µg/L	[7]	[8]	--	--	--	TMDL
Methylmercury	grams/year	0.17[10]	--	--	--	--	TMDL
Total Coliform Organisms	MPN/100 mL	--	2.2[11]	23[12]	--	240	Title 22
Acute Toxicity	% survival	--	--	70[13]/90[14]	--	--	BP
Chronic Toxicity	TUc	--	--	[15]	--	--	BP

1 TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 C.F.R part 133.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
TMDL – Based on the WLA's in the applicable TMDL.
Title 22 – Based on CA Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2 Applicable for discharges from 1 March through 31 October.

3 Applicable for discharges from 1 November through 29 February.

4 Based on an average dry weather flow of 7.5 MGD.

5 Applied as a 4-day average effluent limitation.

6 Applied as a 1-hour average effluent limitation.

7 Average Monthly Effluent Limitation
$S_{AMEL} = \frac{C_{D\,M-AVG}}{0.079} + \frac{C_{C\,M-AVG}}{0.012} \leq 1.0$
$C_{D\,M-AVG}$ = average monthly diazinon effluent concentration in µg/L.
$C_{C\,M-AVG}$ = average monthly chlorpyrifos effluent concentration in µg/L.

8 Average Weekly Effluent Limitation
$S_{AWEL} = \frac{C_{D\,W-AVG}}{0.14} + \frac{C_{C\,W-AVG}}{0.021} \leq 1.0$
$C_{D\,W-AVG}$ = average weekly diazinon effluent concentration in µg/L.
$C_{C\,W-AVG}$ = average weekly chlorpyrifos effluent concentration in µg/L.

9 Applied as an annual average effluent limitation.

10 The effluent calendar year annual methylmercury load shall not exceed 0.17 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

11 Applied as a 7-day median effluent limitation.

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

13 70% minimum of any one bioassay.

14 90% median for any three consecutive bioassays.

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

E. Interim Effluent Limitations

The State Water Board's Resolution 2008-0025 "*Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*" (Compliance Schedule Policy) requires the Central Valley Water Board to establish interim numeric effluent limitations in this Order for compliance schedules longer than 1 year. As discussed in section VI.B.7 of this Fact Sheet, the Central Valley Water Board is approving a compliance schedule longer than 1 year for electrical conductivity and methylmercury for discharges at Discharge Point 002. The Compliance Schedule Policy requires that interim effluent limitations must be based on

current treatment plant performance or existing permit limitations, whichever is more stringent. This Order retains interim effluent limitations for electrical conductivity from Order R5-2013-0127-01 at Discharge Point 002. Consistent with the Delta Mercury Control Program, this Order includes interim effluent limitations for total mercury at Discharge Point 002 based on Facility performance.

Compliance Schedules

Methylmercury. This Order contains a final effluent limitation for methylmercury at Discharge Point 002 based on the Basin Plan's Delta Mercury Control Program, which became effective on 20 October 2011. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application demonstrates the need for additional time to implement actions to comply with the final effluent limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for methylmercury at Discharge Point 002 is established in the Order.

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

The Discharger has made diligent efforts to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream. The Discharger conducted monthly monitoring for mercury and quarterly monitoring for methylmercury during the term of Order R5-2013-0127-01. The Discharger has developed and continues to implement a pollution prevention plan for mercury, which was submitted to the Central Valley Water Board on April 2012, and provided annual progress reports during the term of Order R5-2013-0127-01.

The compliance schedule is as short as possible. The Central Valley Water Board will use the Phase 1 Control Studies' results and other information to consider amendments to the Delta Mercury Control Program during the Phase 1 Delta Mercury Control Program Review. Therefore, at this time, it is uncertain what measures must be taken to consistently comply with the WLA for methylmercury. The interim effluent limits at Discharge Point 002 and final compliance date may be modified at the completion of Phase 1.

Interim performance-based limitations for mercury at Discharge Point 002 have been included in this Order. The interim limitations were determined as described in section IV.E.2.b, below, and are in effect until the final limitations take effect. The interim numeric effluent limitations and source control measures will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

2. **Interim Limits**

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

The interim effluent limitations for total mercury at Discharge Point 002 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 R5-2013-0127-01 at Discharge Point 002, which is consistent with the intent of the TMDL to not penalize dischargers for early actions to reduce mercury. Total mercury samples collected from December 2007 through June 2012 were used in the determination of the performance-based interim effluent limit at Discharge Point 002 in Order R5-2013-0127-01. The interim effluent limitation for total mercury shall apply in lieu of the final effluent limitation for methylmercury.

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

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

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 MUN, industrial service supply, industrial process supply, and agricultural supply.

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

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

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The Discharger must comply with all Standard Provisions and with those additional conditions that are applicable under 40 C.F.R. 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. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following Water Code section 13263.3(d)(3) for mercury. This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans.

b. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 spans a period of approximately 9 years. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the final compliance date; implementation of management practices and schedules for methylmercury

controls; and adoption of a mercury offset program for dischargers who cannot meet their load and WLA's after implementing all reasonable load reduction strategies. The fish tissue objectives, the linkage analysis between objectives and sources, and the attainability of the allocations will be re-evaluated based on the findings of Phase 1 control studies and other information. The linkage analysis, fish tissue objectives, allocations, and time schedules may be adjusted at the end of Phase 1, or subsequent program reviews, as appropriate. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

c. **Chemical Oxygen Demand/BOD_5 Ratio.** This Order requires compliance monitoring for BOD_5 at 20°C using analytical methods in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or State Water Board. If the Discharger performs studies to determine a ratio for chemical oxygen demand to BOD_5 at 20°C, this Order may be reopened to modify the MRP and compliance determination for BOD_5 at 20°C.

d. ~ new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.

2. Special Studies and Additional Monitoring Requirements

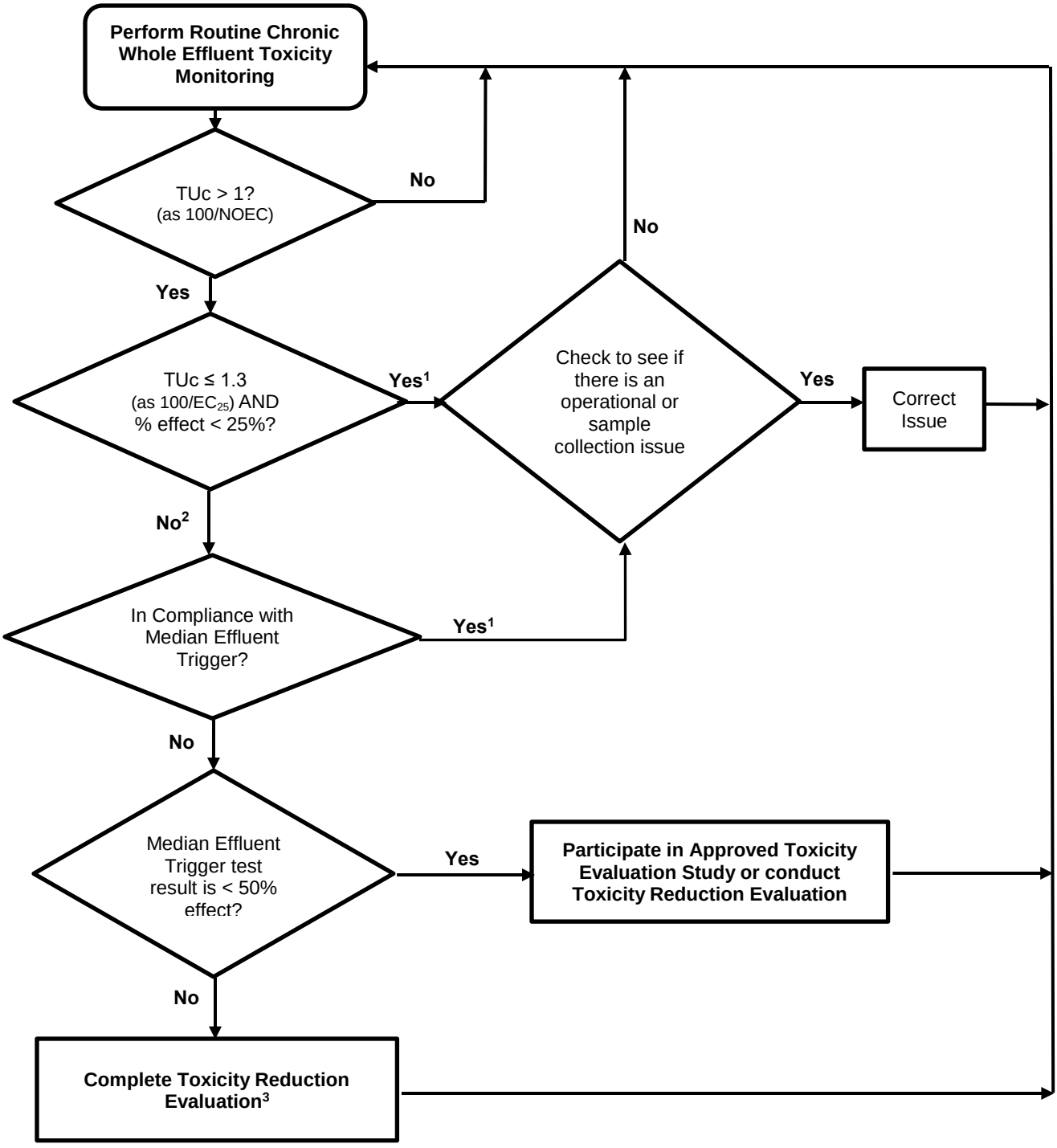
a. **Chronic Whole Effluent Toxicity (WET) Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from September 2017 through August 2018, discharges at Discharge Point 001 do not provide sufficient data to determine if there is reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

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

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low-level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, CVCWA, in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

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

Figure F-3
WET Accelerated Monitoring Flow Chart



[1] The Discharger shall participate in an approved TES if the discharge has exceeded the chronic toxicity effluent limitation 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.

b. **Phase 1 Methylmercury Control Study.** The Basin Plan's Delta Mercury Control Program requires NPDES dischargers, working with other stakeholders, to conduct methylmercury control studies (Phase 1 Control Studies) to evaluate existing control methods and, as needed, develop additional control methods that could be implemented to achieve their methylmercury load and WLA's. Phase 1 Control Studies can be developed through a stakeholder group approach or other collaborative mechanism, or by individual dischargers. The Discharger participated in the CVCWA Coordinated Methylmercury Control Study (Methylmercury Control Study), and the final CVCWA Methylmercury Control Study was submitted to the Central Valley Water Board on 19 October 2018. This Order requires the Discharger to implement the implementation plan and schedule proposed in the final study to comply with methylmercury allocations as soon as possible.

c. **Dissolved-to-Total Metal Translators Verification Study.** The Discharger submitted a Translator Study, which followed U.S. EPA guidance to calculate site-specific dissolved-to-total metal translators for copper, lead, and/or nickel. With no allowance for dilution within the receiving water, the Discharger's Translator Study was developed using 100 percent effluent. Following completion of Facility upgrades, the character of the Facility's effluent has changed since the completion of the Translator Study. Therefore, this Order requires the Discharger to update its Translator Study to verify that the site-specific dissolved-to-total metal translators for copper, lead, and/or nickel remain representative of current effluent characteristics following the completion of Facility upgrades.

3. Best Management Practices and Pollution Prevention

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

vi. Developing measures for program effectiveness.

This Order requires the Discharger participate in a MERP in accordance with the Delta Mercury Control Program. The Discharger has elected to provide financial support in the collective MERP with other Delta dischargers, rather than be individually responsible for any MERP activities. The objective of the MERP is to reduce mercury exposure of Delta fish consumers most likely affected by mercury. The work plan shall address the MERP objective, elements, and the Discharger's coordination with other stakeholders. The Discharger shall continue to participate in the group effort to implement the work plan through 2020 or until they comply with all requirements related to the individual or subarea methylmercury allocation. The Discharger shall notify the Central Valley Water Board if it plans to perform mercury exposure reduction activities individually.

c. **Salinity Evaluation and Minimization Plan.** An evaluation and minimization plan for salinity is required to be maintained in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Willow Slough Bypass and the Conaway Ranch Toe Drain.

4. Construction, Operation, and Maintenance Specifications

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

5. Special Provisions for Publicly-Owned Treatment Works (POTW's)

a. **Pretreatment Requirements**

i. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require POTW's to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants that will interfere with treatment plant operations or sludge disposal and prevent pass-through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.

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

b. **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 Facility. 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 on-site to prevent nuisance, protect public health, and protect groundwater quality.

c. **Continuous Monitoring Systems.** This Order, and the MRP that is a part of this Order, require that certain parameters be monitored on a continuous basis. The Facility is not staffed 24 hours a day. Permit violations or system upsets can go undetected during this period. The Discharger has a system in place to automatically contact Facility operators in the event alarms are generated at the Facility. The Discharger is required to establish an electronic system for operator notification based on continuous recording device alarms. For any future Facility

upgrades, the Discharger shall upgrade the continuous monitoring and notification system simultaneously.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Consistent with Order R5-2013-0157-01, this Order requires the discharge to be oxidized, filtered, and adequately disinfected pursuant to DDW reclamation criteria, 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 Compliance Schedule Policy allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed 10 years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric effluent limitations for that constituent or parameter, interim requirements and dates toward achieving compliance, and compliance reporting within 14 days after each interim date. The Order may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures.

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

a. Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;

b. Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established;

c. A proposed schedule for additional source control measures or waste treatment;

d. Data demonstrating current Facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim, permit effluent limit to apply if a schedule of compliance is granted;

e. The highest discharge quality that can reasonably be achieved until final compliance is attained;

f. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs; and

g. Additional information and analyses to be determined by the Regional Water Board on a case-by-case basis.

Based on information submitted with the ROWD, SMR's, and other miscellaneous submittals, it has been demonstrated to the satisfaction of the Central Valley Water Board that the Discharger needs time to implement actions to comply with the final effluent limitations for methylmercury at Discharge Point 002.

a. **Compliance Schedule for Methylmercury.** The Delta Mercury Control Program is composed of two phases. Phase 1 spans from 20 October 2011 through the Phase 1 Delta Mercury Control Program Review, expected to conclude October 2020. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, 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*.

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 or by 20 October 2020, whichever occurs first, and ends in 2030. During Phase 2, dischargers shall implement methylmercury control programs and continue inorganic (total) mercury reduction programs. Compliance monitoring and implementation of upstream control programs also shall occur in Phase 2. Any compliance schedule contained in an NPDES permit must be "…*an enforceable sequence of actions or operations leading to compliance with an effluent limitation*…" per the definition of a compliance schedule in CWA section 502(17). See also 40 C.F.R. section 122.2 (definition of schedule of compliance). The compliance schedule for methylmercury meets these requirements.

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

the final compliance date for this compliance schedule will be re-evaluated to ensure compliance is required as soon as possible. Considering the available information, the compliance schedule is as short as possible in accordance with federal regulations and the Compliance Schedule Policy.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP, Attachment E of this Order, establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies for flow (continuous), BOD_5 (three times per week), and TSS (three times per week) have been retained from Order R5-2013-0127-01.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2), effluent monitoring is required for all constituents with effluent limitations or discharge prohibitions. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Monitoring Location EFF-A has not been retained from Order R5-2013-0127-01. In lieu of monitoring BOD_5, TSS, chlorine residual, electrical conductivity, and total coliform organisms at EFF-A, compliance determination with effluent limitations for these constituents at EFF-001 and EFF-002 will be monitored at EFF-001. Effluent monitoring frequencies and sample types for BOD_5 (three times per week), TSS (three times per week), chlorine residual (continuous), electrical conductivity (three times per week), and total coliform organisms (three times per week) have been retained from Order R5-2013-0127-01 and will be monitored at EFF-001 to determine compliance with effluent limitations and discharge prohibitions, where applicable, and characterize the effluent for these parameters.

3. Effluent monitoring frequencies and sample types for flow (continuous), pH (continuous), mercury (monthly), ammonia (three times per week), chlorpyrifos (annually), diazinon (annually), dissolved oxygen (monthly), hardness (monthly), and temperature (weekly) have been retained from Order R5-2013-0127-01 at Monitoring Location EFF-001 to determine compliance with effluent limitations and discharge prohibitions, where applicable, and characterize the effluent for these parameters.

4. Monitoring data collected over the term of Order R5-2013-0127-01 at Monitoring Location EFF-001 following the completion of Facility upgrades for cadmium, copper, cyanide, selenium, and aluminum did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2013-0127-01 at Monitoring Location EFF-001.Effluent monitoring frequencies and sample types for flow (continuous), pH (continuous), copper (monthly), mercury (monthly), ammonia (three times per week),

chlorpyrifos (annually), diazinon (annually), dissolved oxygen (monthly), hardness (monthly), methylmercury (quarterly) and temperature (weekly) have been retained from Order R5-2013-0127-01 at Monitoring Location EFF-002 to determine compliance with effluent limitations and discharge prohibitions, where applicable, and characterize the effluent for these parameters.

5. Monitoring data is not available at Monitoring Location EFF-002 following the completion of Facility upgrades for aluminum and selenium; however, based on the Facility's upgrades, change in source water, and monitoring data collected at EFF-001, aluminum and selenium do not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2013-0127-01 at Monitoring Location EFF-002.

6. Based on the Facility's upgrades, change in source water, and monitoring data collected at EFF-001, copper does not demonstrate reasonable potential to exceed water quality objectives/criteria that were developed using site-specific translators at Discharge Point 001. Since monitoring data is not available at Monitoring Location EFF-002, this Order retains monthly effluent monitoring for total recoverable copper and establishes monthly monitoring for dissolved copper at EFF-002. This Order also establishes quarterly effluent monitoring for total recoverable and dissolved copper at EFF-001 to confirm that the site-specific translator is still applicable at EFF-001.

7. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern quarterly during the year 2021 at Monitoring Location EFF-001 and once per permit term when discharge occurs at Monitoring Location EFF-002. This monitoring frequency has been retained from Order R5-2013-0127-01. See section IX.F of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

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

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

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing is required at Monitoring Locations EFF-001 and EFF-002 to demonstrate compliance with the applicable effluent limitations for acute toxicity.

2. **Chronic Toxicity.** Consistent with Order R5-2013-0127-01, quarterly chronic WET testing is required at Monitoring Locations EFF-001 and EFF-002 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 at Monitoring Location EFF-001 since completion Facility upgrades, the species that exhibited the maximum chronic toxicity result was the water flea (*Ceriodaphnia dubia*), with a result of >8 TUc and a percent effect of 42 percent. Consequently, *Ceriodaphnia dubia* has been established as the most sensitive species for chronic WET testing.

D. Receiving Water Monitoring

1. Surface Water

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

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

Participation in the Delta Regional Monitoring Program by a Discharger shall consist of providing funds and/or in-kind services to the Delta Regional Monitoring Program. Since the Discharger is required to participate in the Delta Regional Monitoring Program, this Order does not require receiving water characterization monitoring for purposes of conducting the RPA. However, the ROWD for the next permit renewal

shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents[1] during the term of the permit. Data from the Delta Regional Monitoring Program may be utilized to characterize the receiving water in the permit renewal. 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.

b. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving streams.

c. Receiving water monitoring frequencies and sample types for pH (weekly), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (quarterly), temperature (weekly), and turbidity (monthly) at Monitoring Locations RSW-001U, RSW-001D, RSW-002U and RSW-002D have been retained from Order R5-2013-0127-01 to characterize the receiving water for these parameters.

d. Order R5-2013-0127-01 required monthly receiving water monitoring for fecal coliform organisms at Monitoring Locations RSW-001U, RSW-001D, RSW-002U, and RSW-002D. As discussed in section IV.C.3 of this Fact Sheet, the Facility provides tertiary treatment and utilizes a chlorine disinfection system, which is designed to achieve Title 22 criteria. Since the Facility is able provide tertiary treatment and achieve Title 22 disinfection, the Central Valley Water Board finds that retaining receiving water monitoring requirements for fecal coliform organisms at Monitoring Locations RSW-001U, RSW-001D, RSW-002U, and RSW-002D is not necessary to evaluate the impacts of the effluent on the receiving water. Thus, receiving water monitoring requirements for fecal coliform organisms at Monitoring Locations RSW-001U, RSW-001D, RSW-002U, and RSW-002D have not been retained from Order R5-2013-0127-01.

e. 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 the ROWD for the next permit renewal include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents in Willow Slough Bypass and the Conaway Ranch Toe Drain, during the term of the permit, in order to collect data to conduct an RPA for the next permit renewal. The ambient background characterization monitoring events shall be conducted at Monitoring Locations RSW-001U and RSW-002U.

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*

[1] Appendix A to 40 C.F.R. part 423.

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 MRP is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the MRP are necessary to assure compliance with these WDR's. The Discharger is responsible for the discharges of waste at the Facility subject to this Order.

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 BPTC to comply with the State Antidegradation Policy. Economic analysis is only one of many factors considered in determining BPTC. 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 Antidegradation Policy and the Basin Plan.

This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached MRP. 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 Antidegradation Policy. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water. This Order reduces the groundwater monitoring frequency for depth to groundwater, groundwater elevation, ammonia, electrical conductivity, fecal coliform organisms, pH, and total dissolved solids from quarterly to twice per year.

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.b of this Order. Biosolids monitoring is required per U.S. EPA guidance to evaluate the effectiveness of the pretreatment program.

https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws

2. **Water Supply Monitoring**

   a. Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2013-0127, this Order requires annual water supply monitoring for electrical conductivity at Monitoring Location SPL-001.

   b. Order R5-2013-0127-01 required annual water supply monitoring for standard minerals and total dissolved solids. The Central Valley Water Board finds that water supply monitoring for standard minerals and total dissolved solids is not necessary; thus, water supply monitoring requirements for these parameters have not been retained from Order R5-2013-0127-01.

3. **Filtration System Monitoring**

   Filtration system monitoring and reporting are required to determine compliance with the operation specifications for turbidity in Special Provision VI.C.4.a. Order R5-2013-0127-01 required effluent monitoring for turbidity at Monitoring Location EFF-A following completion of Facility upgrades. This Order moves the point of compliance from Monitoring Location EFF-A to an internal compliance point following the tertiary filters and prior to the chlorine disinfection system (Monitoring Location FIL-001) in order to ensure the operational specifications for turbidity are being met prior to the disinfection process.

4. **Pond Monitoring**

   Order R5-2013-0127-01 required monitoring for influent into the pond system and effluent from the overland flow system, Monitoring Locations PND-INF and PND-EFF respectively, and the three facultative oxidation ponds, two aeration ponds, and polishing pond (PND-001 through PND-006). The Facility completed upgrades on 9 June 2017 to replace the overland flow treatment system and no longer uses the ponds to treat effluent.

   Treatment pond Monitoring Locations PND-INF, PND-EFF, and PND-001 through PND-006 and monitoring requirements have been removed from Order R5-2013-0127-01 because the treatment ponds are no longer used to treat effluent. Monitoring Locations PND-INF and PND-EFF and monitoring requirements for ammonia, nitrate, nitrite, and total kjeldahl nitrogen at PND-INF and PND-EFF have not been retained in this Order.

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

   Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires 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 Davis, Wastewater Treatment Plant. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through posting of a Notice of Public Hearing at the Facility, local City Hall, and at Davis Enterprise newspaper on 3 October 2018. The Notice of Public Hearing was also posted on the Central Valley Water Board's website.

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

http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

B. Written Comments

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

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on 29 October 2018.

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:	7 December 2018
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

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

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and CCR, 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 30th 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

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

E. Information and Copying

The ROWD, 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 Michelle Snapp at (916) 464-4824.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Table G-1. Summary of Reasonable Potential Analysis – EFF-001

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	24	570	750	750[1]	--	--	--	--	--	No
Ammonia Nitrogen, Total (as N)	mg/L	0.92	13	2.14	2.14[1]	1.36[2]	--	--	--	--	Yes
Cadmium, Total Recoverable	µg/L	<0.05	<0.05	2.7	5.0	2.7	--	--	--	--	No
Copper, Total Recoverable	µg/L	11	6.2	17	22[4]	17[4]	--	--	--	--	No
Cyanide, Total (as CN)	µg/L	4.9	<0.9	5.2	22	5.2	--	220,000	--	--	No
Selenium, Total Recoverable	µg/L	2.5	1.4	5.0	20	5.0	--	--	--	--	No
Chloride	mg/L	160	150	230	860[1]	230[3]	--	--	--	--	No
Electrical Conductivity @ 25°C	µmhos/cm	962[4]	1,545[4]	1,400	--	--	--	--	1,400[5]	--	No[6]
Mercury, Total Recoverable	µg/L	0.0017[7]	0.0047[7]	0.012	--	0.012[8]	--	0.051	--	--	Yes[6]

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level

Footnotes:
(1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
(2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(3) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(4) Criteria calculated using site-specific dissolved-to-total metal translators.
(5) Represents the maximum observed annual average concentration for comparison with the City of Woodland's site-specific electrical conductivity water quality objective.
(6) Site-specific water quality criteria for electrical conductivity for the protection of agricultural beneficial uses based on a study conducted by the City of Woodland.
(7) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.
(8) Represents the maximum observed annual average concentration for comparison with the Sport Fish Water Quality Objective established in *Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions* (Statewide Mercury Provisions).
(9) Sport Fish Water Quality Objective established in the Statewide Mercury Provisions. Criteria representative of the corresponding fish tissue water column concentration objective for total mercury within flowing water bodies (e.g., rivers, creeks, streams, and waters with tidal mixing).

ATTACHMENT H – CALCULATION OF WQBEL'S

Aquatic Life WQBEL's Calculations – Discharge Point 001																	
Parameter	Units	Criteria		B	CV Eff[1]	Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC			CMC	CCC	ECA Multiplier$_{acute}$	LTA$_{acute}$	ECA Multiplier$_{chronic}$	LTA$_{chronic}$	AMEL Multiplier$_{95}$	AWEL Multiplier	MDEL Multiplier$_{99}$	AMEL[2]	AWEL[3]	MDEL[4]
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	5.6[5]	1.4[5]	1.5	0.21	--	--	0.633	3.56	0.916	1.28[6]	1.06	1.49	--	1.3[7]	1.9	--
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	5.6[5]	1.9[5]	13	0.54	--	--	0.350	1.97	0.799	1.52[6]	1.17	2.49	--	1.9[7]	--	3.8

1 CV was established in accordance with section 1.4 of the SIP.
2 Average Monthly Effluent Limitations are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.
3 Average Weekly Effluent Limitations are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.
4 Maximum Daily Effluent Limitations are calculated according to section 1.4 of the SIP using a 99th percentile occurrence probability.
5 CMC's and CCC's for ammonia retained from Order R5-2013-0127-01 in order to calculate seasonal WQBEL's in this Order.
6 The LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30.
7 Seasonal Average Monthly Effluent Limitations retained from Order R5-2013-0127-01 in order to avoid backsliding in accordance with sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l).

Aquatic Life WQBEL's Calculations – Discharge Point 002																	
Parameter	Units	Criteria		B	Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations		
		CMC	CCC		CMC	CCC	ECA Multiplier$_{acute}$	LTA$_{acute}$	ECA Multiplier$_{chronic}$	LTA$_{chronic}$	AMEL Multiplier$_{95}$	AWEL Multiplier	MDEL Multiplier$_{99}$	AMEL[1]	AWEL[2]	MDEL[3]
Ammonia Nitrogen, Total (as N) 1 March – 31 October	mg/L	5.6	1.6	2.4	--	--	0.23	1.3	0.7	1.1	1.3	3.5	--	1.5	3.9	--
Ammonia Nitrogen, Total (as N) 1 November – 29 February	mg/L	5.6	2.8	0.50	--	--	0.34	1.9	0.8	2.5	1.2	2.6	--	2.3	4.9	--

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