CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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ORDER R5-2019-XXXX
NPDES NO. CA0082660

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF BRENTWOOD WASTEWATER TREATMENT PLANT CONTRA COSTA COUNTY

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

Table 1. Discharger Information

Discharger	City of Brentwood
Name of Facility	Wastewater Treatment Plant
Facility Address	2251 Elkins Way
	Brentwood, CA 94513
	Contra Costa County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Tertiary Treated Effluent	37° 57' 35.80"	121° 41' 0.70"	Marsh Creek

Table 3. Administrative Information

This Order was adopted on:	**4/5 April 2019**
This Order shall become effective on:	**1 June 2019**
This Order shall expire on:	**31 May 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 (CCR), and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**31 May 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 **4/5 April 2019**.

_____
PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the City of Brentwood, 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. The provisions/requirements in subsections IV.C, V.B, VI.C.4, and VI.C.6.a are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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. Self-Regenerating Water Softeners. Water Code Section 13148(e) provides for a local wastewater agency to control salinity inputs from residential self-regenerating water softener (SRWS) systems. The local agency may adopt a resolution or ordinance to take actions to control the salinity input. Before a local agency takes action to control salinity input from self-regenerating water softeners, the Regional Water Board must make a finding that the control of SRWS-caused salinity inputs will contribute to the achievement of water quality objectives. Accordingly, the Central Valley Water Board finds that the control of residential use of SRWS brine discharges to the discharger's collection system will contribute to the achievement of the water quality objectives. This finding is based on the discharger's evidence in the record and the Water Board's independent review of the evidence. See Fact Sheet - Rationale for Provisions (Section VI.B.4.c) for additional detail regarding this finding.

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

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

THEREFORE, IT IS HEREBY ORDERED that Order R5-2013-0106-01 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

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

B. The 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

1. **Effective immediately and until compliance with Special Provision VI.C.6.b**, discharges exceeding an average dry weather flow of 5.0 million gallons per day (MGD) are prohibited.

2. **Effective upon compliance with Special Provision VI.C.6.b**, discharges exceeding an average dry weather flow of 6.4 MGD are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	7	12		--	--
	lbs/day[1]	292	500		--	--
	lbs/day[2]	374	641		--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	--	--	--
Priority Pollutants						
Dibromochloromethane	µg/L	34	--	83	--	--
Dichlorobromomethane	µg/L	46	--	99	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	0.86	1.7	--	--	--
	lbs/day[1]	36	71	--	--	--
	lbs/day[2]	46	91	--	--	--
Chloride	mg/L	344	--	398	--	--
Dissolved Oxygen[3]	mg/L	--	--	--	5.5	--

[1] Based on a design average daily discharge flow of 5.0 million gallons per day (MGD). Effective immediately and until compliance with Special Provision IV.C.6.b.
[2] Based on a design average daily discharge flow of 6.4 MGD. Effective upon compliance with Special Provisions VI.C.6.b.
[3] Compliance with dissolved oxygen is measured at DO-001.

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

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

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

d. **Temperature.**

i. **Effective immediately**, the maximum temperature of the discharge shall not exceed the natural receiving water temperature, measured at Monitoring Location RSW-001, by more than:

a) 20º F from 1 February through 30 November; and;

b) 24 º F from 1 December through 31 January.

ii. **If the Central Valley Water Board receives concurrence from the State Water Board regarding the updated Thermal Plan exceptions[1], the following effluent limitation applies in lieu of the effluent limitation in section IV.A.1.d.i, above.**

The maximum temperature of the discharge shall not exceed the natural receiving water temperature, measured at Monitoring Location RSW-001, by more than:

a) 20°F from 1 February through 30 November; and,

b) 23°F from 1 December through 31 January.

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

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

f. **Total Coliform Organisms.** Effluent total coliform organisms, sampled at monitoring location TCO-001 (see MRP Section II) after the chlorine disinfection system immediately following the chlorine contact basin in service, prior to dichlorination, shall not exceed:

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

g. **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.

[1] See Attachment F, Section III.C.1.c for details regarding the Thermal Plan exceptions.

h. **Methylmercury. Effective 31 December 2030**, the effluent calendar year annual methylmercury load shall not exceed 0.14 grams/year, in accordance with the Delta Mercury Control Program.

2. Interim Effluent Limitations

The Discharger shall maintain compliance with the following interim effluent limitation at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 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 34 grams/year. This interim effluent limitation shall apply in lieu of the final effluent limitation for methylmercury (section IV.A.1.h).

B. Land Discharge Specifications – (Not Applicable)

The Discharger is enrolled under State Water Board Water Quality Order 2014-0090-DWQ, General Waste Discharge Requirements for Recycled Water Use.

C. Recycling Specifications – (Not Applicable)

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Marsh Creek:

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 that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen.** The dissolved oxygen concentration to be reduced below 5.0 mg/L.
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); and

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.**

a. **Effective immediately**,

i. Surface water temperature, as measured at Monitoring Location RSW-002 location, to raise greater than 5 º F above the natural temperature of the receiving water, measured at Monitoring Location RSW-001, on a monthly average basis for the months of March through September.

ii. The receiving water temperature, as measured at Monitoring Location RSW-002, to exceed:

a) 74 º F as monthly average for October;

b) 72 º F as monthly average for November;

c) 65 º F as a period average for 1 December through 28 February.

b. **If the Central Valley Water Board receives concurrence from the State Water Board regarding the updated Thermal Plan exceptions[1], the following limitations will apply in lieu of the limitations in section V.A.15.a, above**:

The discharge shall not cause an exceedance of the following receiving water temperatures at Monitoring Location RSW-002:

Month	Maximum RSW-002 Monthly Average Temperature (°F)
January	66
February	66
March	70
April	72
May	74
June	76
July	78
August	78
September	78
October	76
November	72
December	67

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

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 in concentrations greater than background water quality or water quality objectives, whichever is greater. The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably impact beneficial uses, or cause pollution or nuisance.

[1] See Attachment F, Section III.C.1.c for details regarding the Thermal Plan exceptions.

VI. PROVISIONS

A. Standard Provisions

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

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

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

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

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

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

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

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

      The causes for modification include:

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

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

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

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

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

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

   d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under

sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

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

ii. Controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA when 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 bypass, 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 in the Annual Operations Report in accordance with the Monitoring and Reporting Program Technical Reports Table. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

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

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

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

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 noncompliance, 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 noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

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

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

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

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity (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. **Mercury.** The Basin Plan's Delta Mercury Control Program was designed to proceed in two phases. After Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers modification to the Delta Mercury Control Program. This Order may be reopened to address changes to the Delta Mercury Control Program.

d. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following Water Code section 13263.3(d)(3) for mercury. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

e. **Whole Effluent Toxicity (WET).** As a result of a Toxicity Reduction Evaluation (TRE) or Toxicity Evaluation Study (TES), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions, this Order may be reopened to implement the new provisions.

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

g. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

h. **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 numeric toxicity monitoring trigger during routine monitoring established in this Provision, the Discharger is required to initiate additional actions to evaluate effluent toxicity, which may include a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise

process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions as described in this provision below, the Discharger may participate in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE.

i. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity 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 ii, below.

ii. **Numeric Toxicity Monitoring Trigger Exceeded.** When a chronic WET result during routine monitoring exceeds the numeric 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/OR the percent effect is less than 25 percent at 100 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring.[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 is greater than 25 percent at 100 percent effluent, proceed with step (c). 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.** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity

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

tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:

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

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

3. Best Management Practices and Pollution Prevention

a. **Pollution Prevention Plan for Mercury.** The Discharger shall continue to implement 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), and further described in the Fact Sheet. 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 Monitoring and Reporting Program Technical Reports Table and may be submitted with the Annual Operations Report. The progress reports shall discuss the effectiveness of the pollution prevention plan in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the pollution prevention plan.

b. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement and evaluate the effectiveness of the salinity and minimization plan and provide a summary with the Report of Waste Discharge, due 1 year prior to the permit expiration date. The summary report shall be submitted in accordance with the Monitoring and Reporting Program Technical Reports Table.

4. Construction, Operation and Maintenance Specifications

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

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

b. **Emergency Storage Basin Operating Requirements**

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

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

iii. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow).

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 nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.

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

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

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

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

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

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

iv. **Pretreatment Reporting Requirements.** Pretreatment reporting requirements are included in the MRP, section X.D.2 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 onsite sludge/biosolids treatment, processing, and storage for the Facility is described in the Fact Sheet (Attachment F, section II.A and section II.E). Any proposed change in the onsite treatment, processing, or storage of sludge/biosolids, not including the planned improvements described in Attachment F, section II.E., shall be reported to the Executive Officer at least **90 days** in advance of the change, and shall not be implemented until written approval by the Executive Officer.

6. Other Special Provisions

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

b. **Phase II Facility Expansion (6.4 MGD).** The Discharger has requested an expansion of allowable flows to be discharged to Marsh Creek. The permitted average dry weather discharge flow may increase to 6.4 MGD upon compliance with the following conditions:

i. **Facility Improvements.** The Discharger shall have completed construction of its Phase II Facility Expansion Project described in Attachment F, Section II.E. The Discharger shall provide certification of completion by the design engineer.

ii. **Compliance with Effluent and Receiving Water Limits.** The Discharger shall demonstrate compliance with all final effluent and receiving water limits required in sections IV and V of this Order.

iii. **Request for Flow Increase.** The Discharger shall submit a request for an increase in the permitted discharge flow rate, which demonstrates compliance with items i and ii, above. The increase in the permitted discharge flow rate shall not be effective until the Executive Officer verifies compliance with Special Provision VI.C.6.b and approves the request.

7. Compliance Schedules

a. **Compliance Schedule for Final Effluent Limitations for Methylmercury.** This Order requires compliance with the final effluent limitations for methylmercury by **31 December 2030**. The Discharger shall comply with the time schedule shown in the Technical Reports Table to ensure compliance with the final effluent limitations. Additional information regarding the compliance schedule, including completed tasks during the previous permit term, is described in the Fact Sheet (Attachment F, Section VI.B.7).

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a and IV.A.1.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Waste Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Waste Discharge Requirements section IV.A.1.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 and IV.A.2.a). 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.E). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow prohibition will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

D. Total Coliform Organisms Effluent Limitations (Section IV.A.1.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. Compliance for total coliform organisms will be determine at monitoring location TCO-001 (see MRP Section II) after the chlorine disinfection system immediately following the chlorine contact basin in service, prior to dichlorination.

E. Total Residual Chlorine Effluent Limitations (Section IV.A.1.e). 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 for Total Residual Chlorine is required for compliance determination when either one of the following conditions are met:

a. a positive detection of the dechlorinating agent (e.g sodium bisulfite, $NaHSO_3$) residual; or

b. a chlorine residual detection at or below the prescribed limit when the dechlorination agent residual is zero or non-detect.

Data reported, as required above, 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 section IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:

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

If the effluent flow exceeds the permitted average dry weather flow during wet-weather, the effluent mass limitations contained in the Waste Discharge Requirements section IV.A.1.a shall not 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 <u>not</u> be deemed out of compliance.

H. Temperature Effluent Limitations (Section IV.A.1.d). Compliance with the final effluent limitations for temperature shall be ascertained using the daily average effluent temperature at Monitoring Location EFF-001 and the temperature of the receiving water measured on the same day by grab sample at Monitoring Location RSW-001.

I. Chlorpyrifos and Diazinon Effluent Limitations (Section IV.A.1.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.

J. Temperature Receiving Water Limitation (Section V.A.15.b). Compliance with the temperature receiving water limitation will be determined based on the difference in the temperature measured at Monitoring Location RSW-001 as compared to the downstream temperature measured at Monitoring Location RSW-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-001 as compared to the downstream turbidity measured at Monitoring Location RSW-002.

L. Use of Delta Regional Monitoring Program and Other Receiving Water Data to Determine Compliance with Receiving Water Limitations. Delta Regional Monitoring Program data and other receiving water monitoring data that is not specifically required to be conducted by the Discharger under this 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 IX.D 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 incapitation) 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 measured concentration is distinguishable from method blank results, as defined in in 40 C.F.R. part 136, Attachment B.

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

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

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

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

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

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

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

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:

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

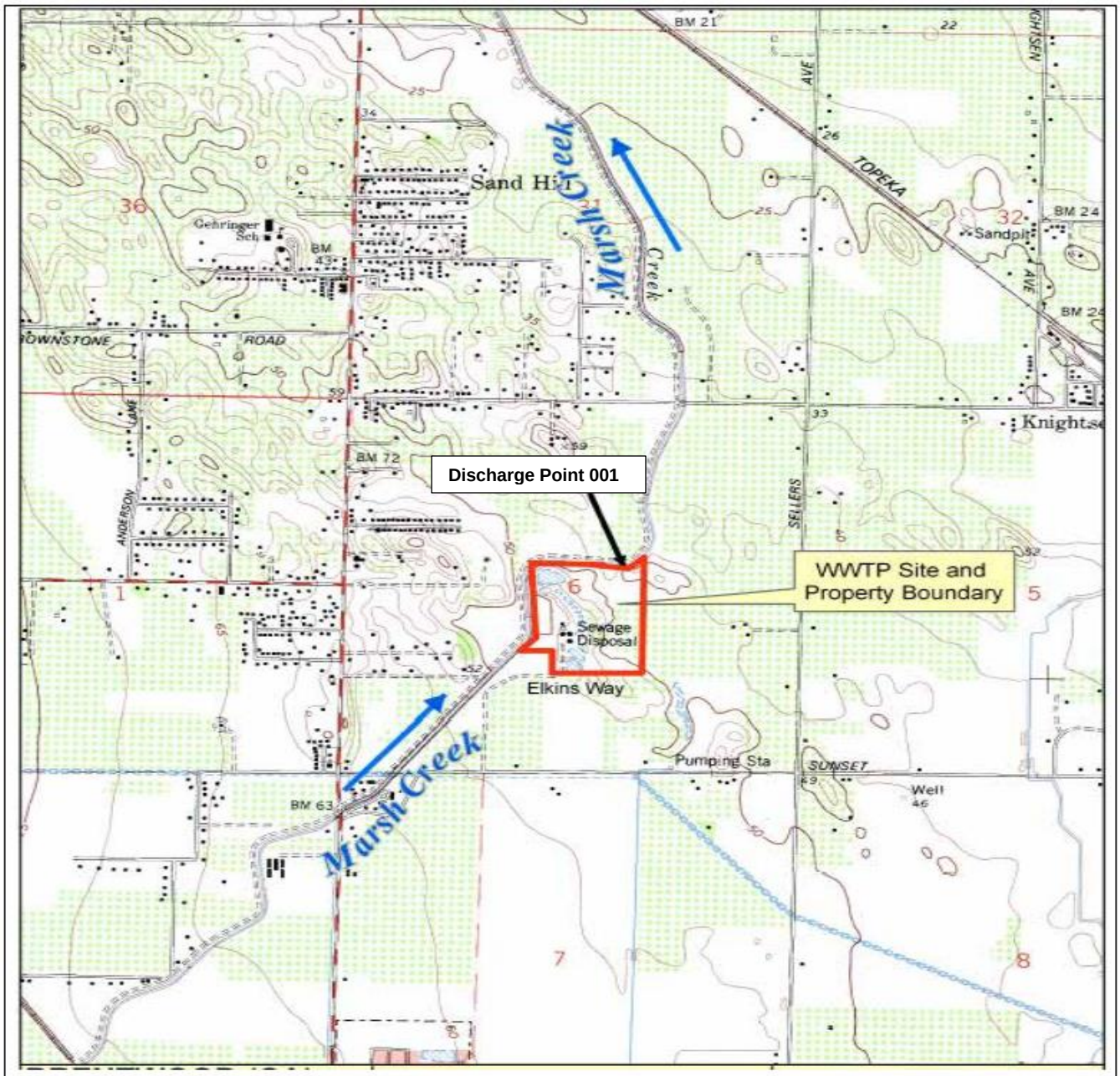
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

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

Figure B-1. Location Map of City of Brentwood Wastewater Treatment Plant



Drawing Reference: Brentwood (CA) U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE Currentness Year 1978 Not to Scale	SITE LOCATION MAP City of Brentwood Wastewater Treatment Plant Contra Costa County	N W E S

Figure B-2. Current City of Brentwood Wastewater Treatment Plant Site Plan

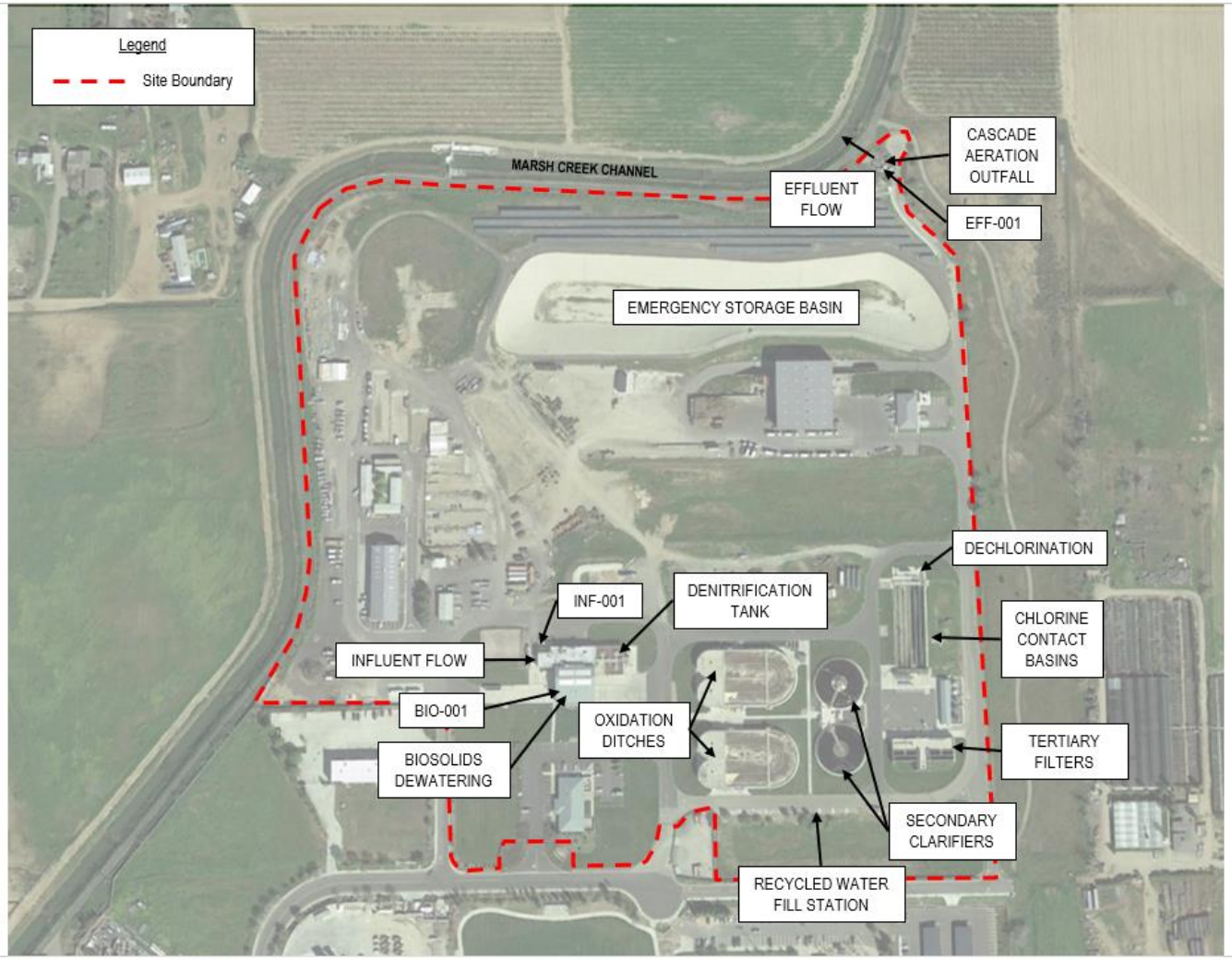
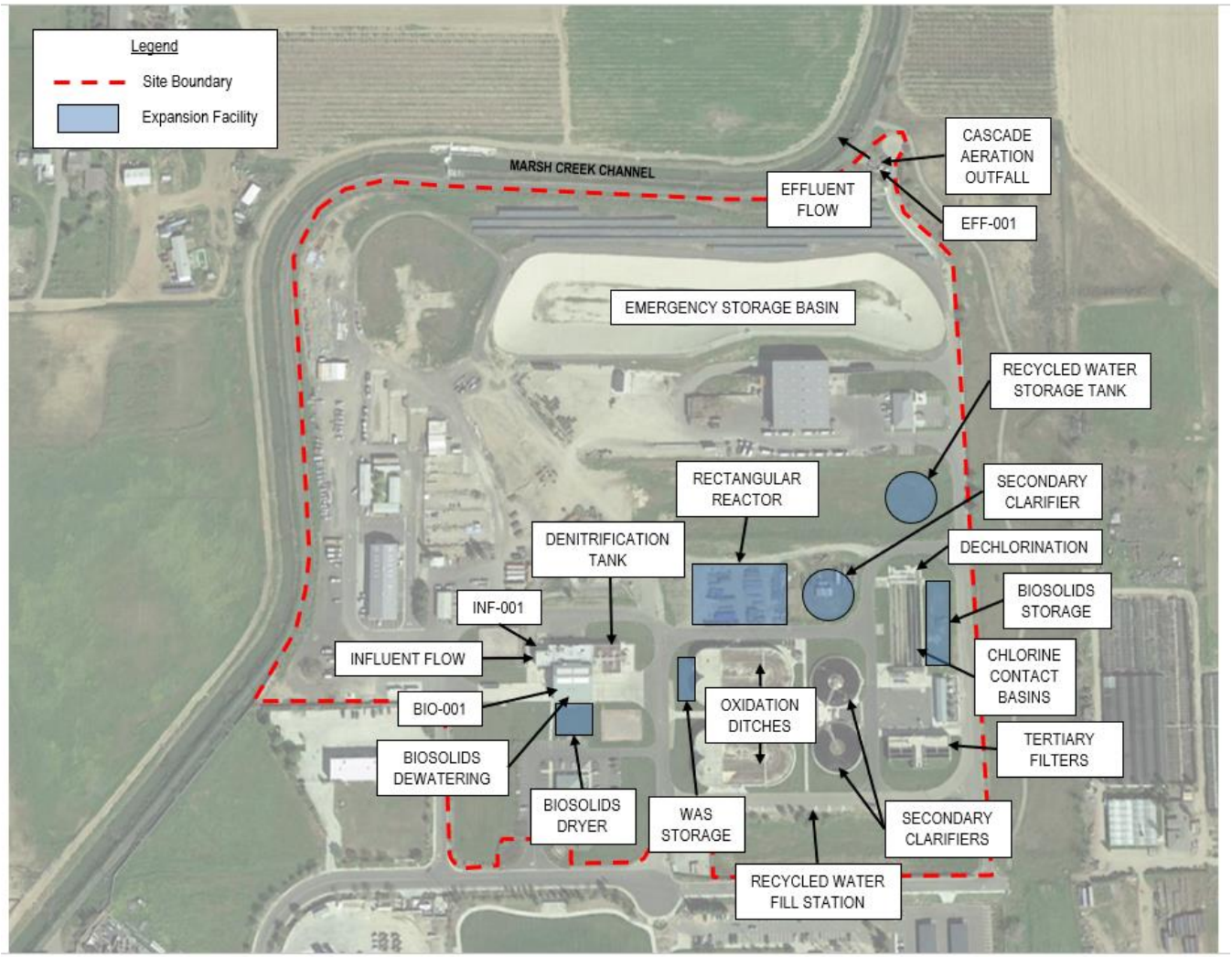


Figure B-3. Future City of Brentwood Wastewater Treatment Plant Site Plan



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Current City of Brentwood Wastewater Treatment Plant Flow Schematic (1 of 2)

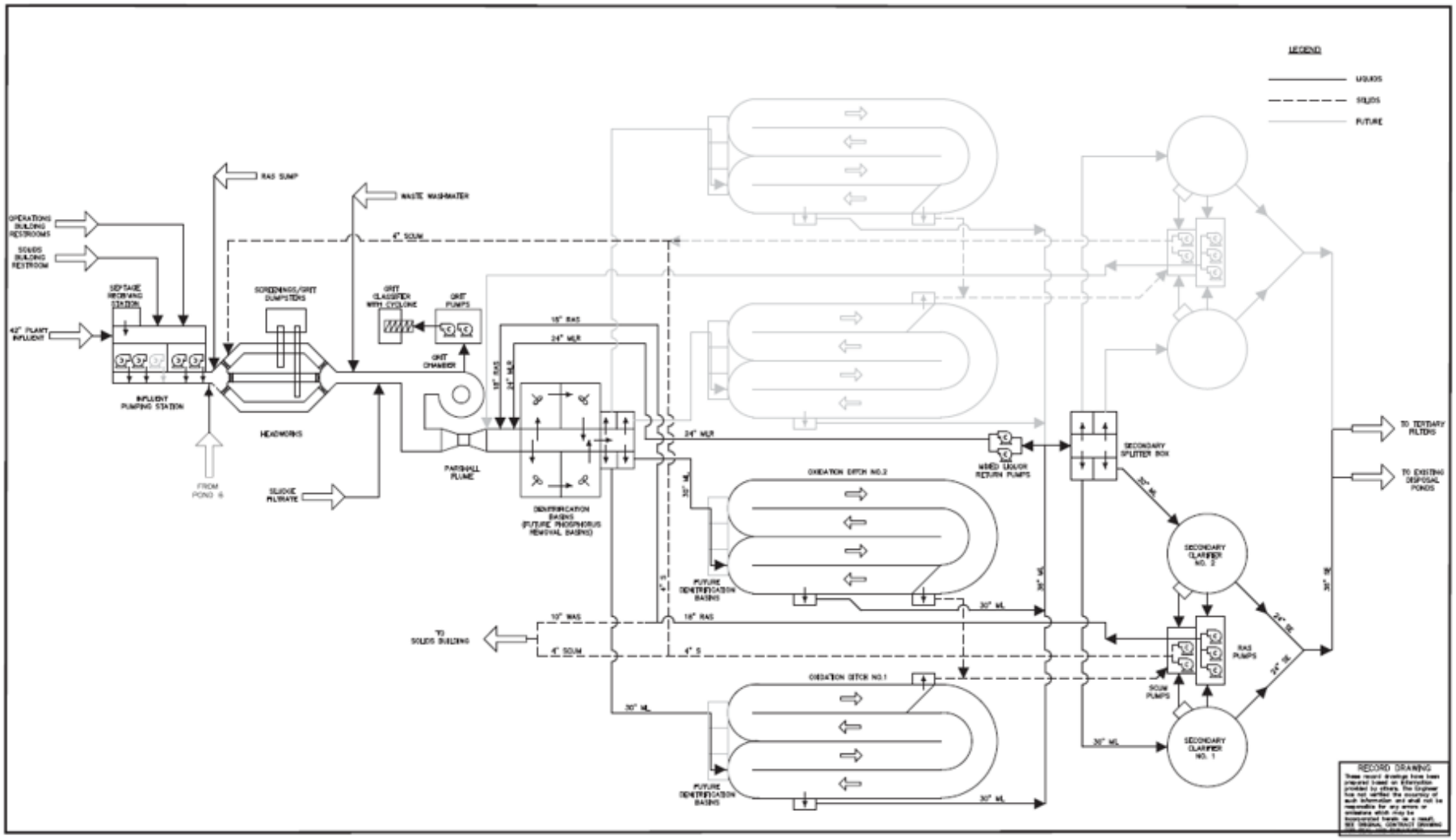


Figure C-1. Current City of Brentwood Wastewater Treatment Plant Flow Schematic (2 of 2)

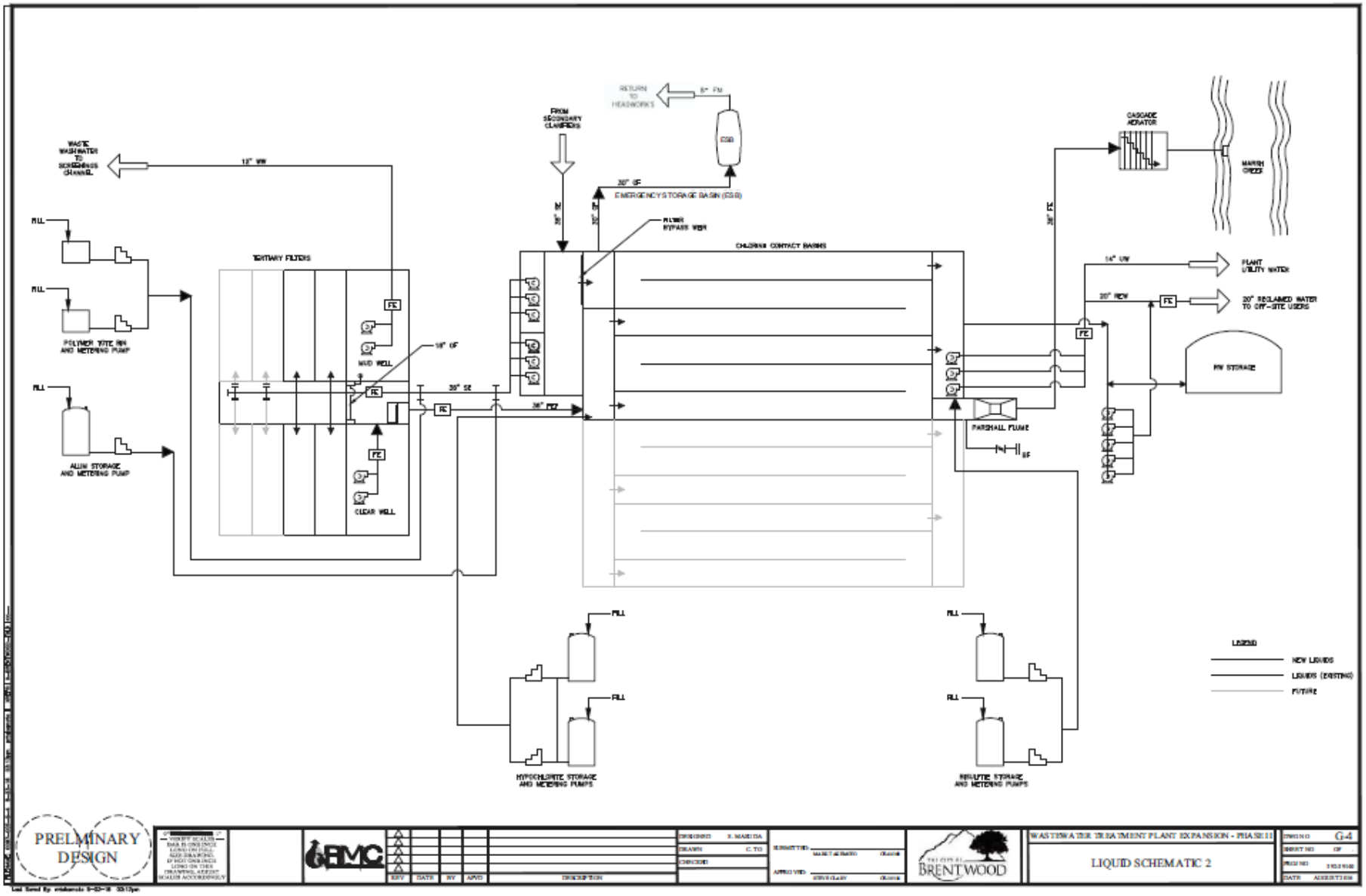


Figure C-2. Future City of Brentwood Wastewater Treatment Plant Flow Schematic (1 of 2)

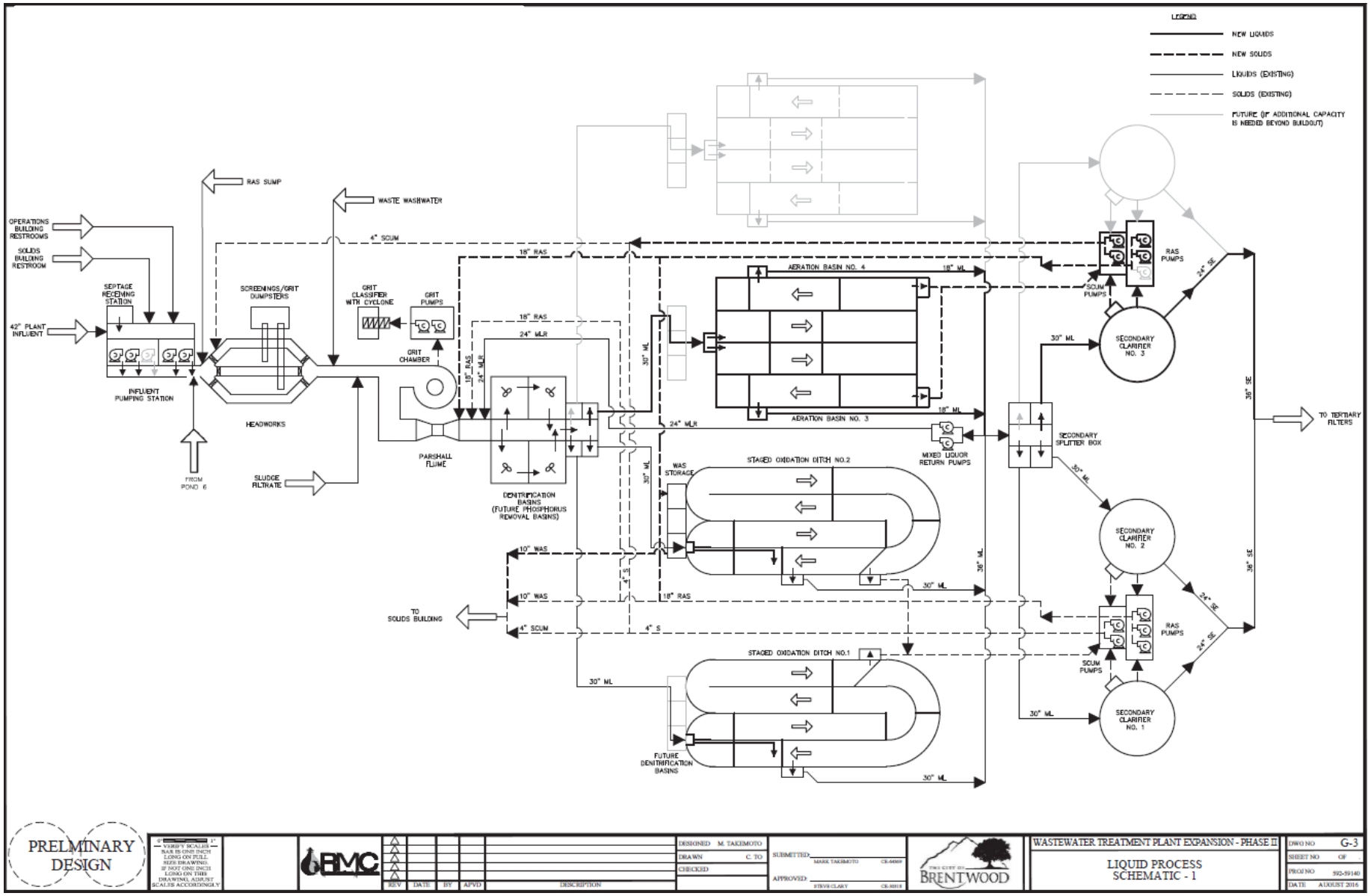
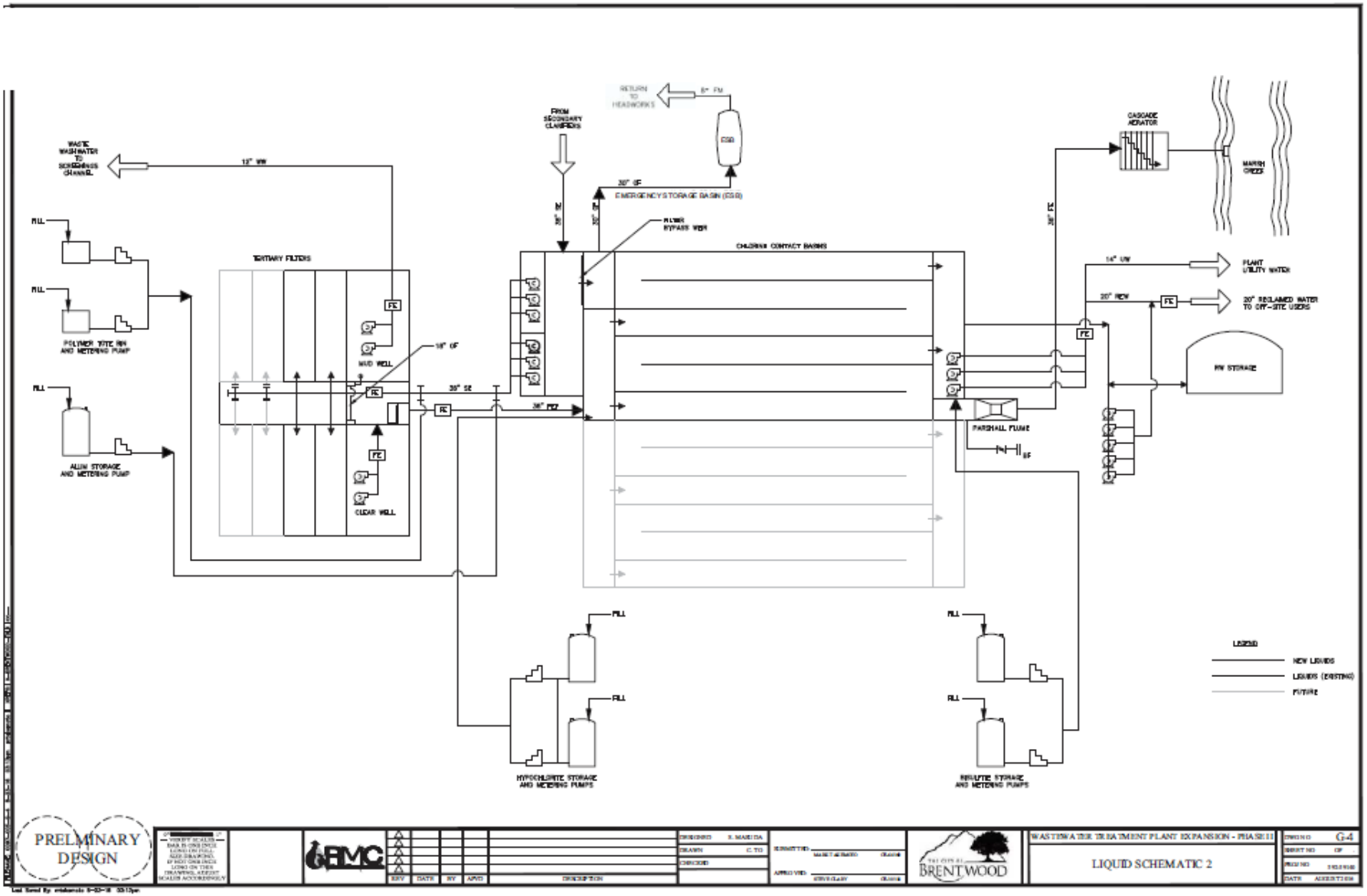


Figure C-2. Future City of Brentwood Wastewater Treatment Plant Flow Schematic (2 of 2)



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants 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 noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1))

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

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

E. Twenty-Four Hour Reporting

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

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

   As of 21 December 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. The 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 could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 122.41(l)(1)(ii))

G. Anticipated Noncompliance

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

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 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).)

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all 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 onsite 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 onsite field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine must be kept onsite 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 noncompliance, 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 where a representative sample of the influent into the Facility can be collected prior to any plant return flows and prior to entering the treatment process.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected immediately following dechlorination and prior to commingling with other waste streams or being discharged to Marsh Creek. Latitude: 37° 57’ 35.80” N, Longitude: 121° 41’ 0.70” W
--	RSW-001	Marsh Creek, approximately 100 feet upstream of Discharge Point 001. Latitude 37° 57’ 45.54” N, Longitude 121° 41’ 3.48” W
--	RSW-002	Marsh Creek, approximately 300 feet downstream of Discharge Point 001. Latitude 37° 57’ 48.81” N, Longitude 121° 41’ 1.20” W
--	BIO-001	A location where a representative sample of the biosolids can be obtained.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.
--	FIL-001	A location where a representative sample of effluent from the tertiary filtration system can be collected immediately following the filters.
--	TCO-001	A location where a representative sample of effluent Total Coliform Organisms after the chlorine disinfection system can be collected immediately following the chlorine contact basin in service, prior to dechlorination.
--	DO-001	A location where a representative sample of effluent for Dissolved Oxygen testing can be collected after all treatment processes and prior to being discharged into Marsh Creek. Latitude: 37° 57’ 46.10” N, Longitude: 121° 41’ 02.59” W

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/Week	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Week	[2]
Non-Conventional Pollutants				
Electrical Conductivity @ 25°C	mg/L	24-hr Composite[1]	1/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. The Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level (ML):

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20° C)	mg/L	24-hr Composite[1]	2/Week	[2]
	lbs/day	Calculate	2/Week	--
pH	standard units	Grab	1/Day[3,4]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	2/Week	[2]
Priority Pollutants				
Dibromochloromethane	µg/L	Grab	1/Month	[2,5]
Dichlorobromomethane	µg/L	Grab	1/Month	[2,5]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[2,5,6]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,7]	[2]
	lbs/day	Calculate	1/Week	--
Chloride	mg/L	24-hr Composite[1]	1/Month	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chlorine, Total Residual	mg/L	Meter	Continuous[11]	[2,8]
Sodium Bisulfite, $NaHSO_3$	mg/L	Meter	Continuous[11]	[2,8]
Chlorpyrifos	µg/L	Grab	1/Year	[2,9]
Diazinon	µg/L	Grab	1/Year	[2,9]
Dissolved Oxygen [12]	mg/L	Grab	1/Day	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[2]
Methylmercury	ng/L	Grab	1/Month	[2,6]
Nitrate, Total (as N)	mg/L	Grab	1/Quarter	[2]
Nitrite, Total (as N)	mg/L	Grab	1/Quarter	[2]
Sulfate	mg/L	24-hr Composite[1]	1/Month	[2]
Temperature	°F	Grab	1/Day[3,4]	[2]
Total Coliform Organisms	MPN/100 mL	Grab	5/Week[10]	[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.

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

5 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.D).

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

7 Concurrent with whole effluent toxicity (WET) monitoring.

8 Total chlorine residual and sodium bisulfite ($NaHSO_3$) must be monitored with an analytical method that is sufficiently sensitive to measure at the permitted level of 0.01 mg/L.

9 Chlorpyrifos and diazinon shall be sampled using U.S. EPA Method 625M, Method 8141, or equivalent GC/MS method with a lower Reporting Limit than the Basin Plan Water Quality Objectives of 0.015 µg/L and 0.1 µg/L for chlorpyrifos and diazinon, respectively.

10 Total coliform organisms samples shall be collected at Monitoring Location TCO-001.

11 If the dechlorinating agent, (e.g. sodium bisulfite $NaHSO_3$) is positive, Total Residual Chlorine shall be reported as zero, and if the dechlorinating agent is zero or ND, Total Residual Chlorine shall be reported.

12 Dissolved oxygen shall be measured at monitoring location DO-001.

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 or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

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

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

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

B. Chronic Toxicity Testing. The Discharger shall meet the 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 chronic toxicity units (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 flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this 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-4, below. For Toxicity Reduction Evaluation (TRE) monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. Chronic Toxicity Testing Dilution Series

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

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

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than 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 routine 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 quarterly self-monitoring report (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 quarterly 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 quarterly 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 reissuance and results submitted with the Report of Waste Discharge (ROWD) (see Technical Reports Table).

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

2. **Determination of Most Sensitive Species.** If a single test in the species sensitivity screening testing exceeds 1 TUc (as 100/NOEC), then the species used in that test shall be established as the most sensitive species. If there is more than a single test that exceeds 1 TUc (as 100/NOEC), then 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 exceed 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. RECEVING WATER MONITORING REQUIREMENTS

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-001 and RSW-002

1. The Discharger shall monitor Marsh Creek at Monitoring Locations RSW-001 and RSW-002 as follows:

Table E-5. 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	Grab	1/Week[1]	[2]
Turbidity	NTU	Grab	1/Week[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 reach bounded by Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:

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

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

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants (excluding asbestos).

Biosolids monitoring shall be conducted using the methods in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA publication SW-846), as required in 40 C.F.R. section 503.8(b)(4). All results must be reported on a 100 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-6. Municipal Water Supply Monitoring Requirements

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

[1] If the water supply is from more than one source, the electrical conductivity and total dissolved solids 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.

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

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-7. 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 influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results.

[2] Each day report daily average and maximum turbidity.

D. Effluent and Receiving Water Characterization

Since the Discharger is participating 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] during the term of the permit. The ambient background characterization monitoring event shall be conducted at Monitoring Location RSW-001. 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. 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. **Quarterly Monitoring.** Samples shall be collected from the effluent (Monitoring Location EFF-001) and analyzed for the constituents listed in Table E-8, below. Quarterly monitoring shall be conducted for one year beginning the second quarter of 2020 (four consecutive samples, evenly distributed throughout the year) and 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. **Sample Type.** Effluent samples shall be taken as described in Table E-9, below.

3. **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 all constituents to be monitored in the influent, effluent, receiving water, and characterization monitoring by the due date shown in the Technical Reports Table. 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-8 below provides required maximum reporting levels in accordance with the SIP.

Table E-8. Effluent and Receiving Water Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
2-Chloroethyl vinyl ether	µg/L	Grab	1
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	0.5
Carbon Tetrachloride	µg/L	Grab	0.5
Chlorobenzene	µg/L	Grab	0.5

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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Chloroethane	µg/L	Grab	0.5
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane[2]	µg/L	Grab	0.5
Dichlorobromomethane[2]	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Methyl bromide (Bromomethane)	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
3-Methyl-4-Chlorophenol	µg/L	Grab	--
Tetrachloroethene	µg/L	Grab	0.5
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	--
Trichlorofluoromethane	µg/L	Grab	--
1,1,1-Trichloroethane	µg/L	Grab	0.5
1,1,2- 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

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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Chlordane	µg/L	24-hr Composite[4]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[4]	0.005
Dieldrin	µg/L	24-hr Composite[4]	0.01
Endosulfan sulfate	µg/L	24-hr Composite[4]	0.01
Endrin	µg/L	24-hr Composite[4]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[4]	0.01
Heptachlor	µg/L	24-hr Composite[4]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[4]	0.02
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[4]	0.5
PCB-1016	µg/L	24-hr Composite[4]	0.5
PCB-1221	µg/L	24-hr Composite[4]	0.5
PCB-1232	µg/L	24-hr Composite[4]	0.5
PCB-1242	µg/L	24-hr Composite[4]	0.5
PCB-1248	µg/L	24-hr Composite[4]	0.5
PCB-1254	µg/L	24-hr Composite[4]	0.5
PCB-1260	µg/L	24-hr Composite[4]	0.5
Toxaphene	µg/L	24-hr Composite[4]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[4]	--
Ammonia (as N)[2]	mg/L	24-hr Composite[4]	--
Boron	µg/L	24-hr Composite[4]	--
Chloride[2]	mg/L	24-hr Composite[4]	--
Flow	MGD	Meter	--
Hardness (as $CaCO_3$)[2]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	24-hr Composite[4]	--
Mercury, Methyl[2]	ng/L	Grab	--
Nitrate (as N)[2]	mg/L	24-hr Composite[4]	--
Nitrite (as N)[2]	mg/L	24-hr Composite[4]	--
pH[2]	Std Units	Grab	--
Phosphorus, Total (as P)	mg/L	24-hr Composite[4]	--
Specific conductance (EC)[2]	µmhos/cm	24-hr Composite[4]	--
Sulfate[2]	mg/L	24-hr Composite[4]	--
Sulfide (as S)	mg/L	24-hr Composite[4]	--
Sulfite (as SO_3)	mg/L	24-hr Composite[4]	--
Temperature[2]	°C	Grab	--
Total Dissolved Solids	mg/L	24-hr Composite[4]	--

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

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

3 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.

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 noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

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

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program 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-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
2/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
5/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

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
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
1/Event	Permit effective date	Commencement of the discharge event through the termination of the discharge event.	First day of second calendar month following month of sampling
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 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; 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. **Effective 1 January 2020**, the Discharger shall attach all final laboratory reports from all contracted, commercial laboratories, including quality assurance/quality control information, with all its SMR's for which sample analyses were performed.

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

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

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

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

b. **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.

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

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

e. **Temperature Effluent Limitation**. For every day receiving water temperature samples are collected at Monitoring Location RSW-001, the Discharger shall

calculate and report the difference between the effluent temperature and the upstream receiving water temperature based on the difference in the effluent temperature at Monitoring Location EFF-001 and receiving water temperature of grab samples collected at Monitoring Location RSW-001. The effluent temperature shall be taken from the daily effluent data for the same time that the river grab sample was collected.

f. **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 section IV.A.1.g of the Order, and consistent with the Compliance Determination Language in section VII.I of the Waste Discharge Requirements.

g. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall report monthly in the SMR the dissolved oxygen concentrations in the effluent (Monitoring Location EFF-001) and the receiving water (Monitoring Locations RSW-001 and RSW-002).

h. **Turbidity Receiving Water Limitations**. The Discharger shall calculate and report the turbidity increase in the receiving water, based on the difference in turbidity at Monitoring Locations RSW-001 and RSW-002, applicable to the natural turbidity conditions specified in section V.A.17.a-e of the Waste Discharge Requirements.

i. **Temperature Receiving Water Limitations**. While Receiving Water Limitations V.A.15.a are in effect, the Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMR's)

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 wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

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 noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

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

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

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

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

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

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

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

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

   ii. consistently achieved compliance;

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

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

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

vi. compliance status unknown.

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

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

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

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

i. Name of SIU;

ii. Category, if subject to federal categorical standards;

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

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

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

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

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

viii. 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;

ix. Restriction of flow to the POTW.

x. Disconnection from discharge to the POTW.

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

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

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

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

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

State Water Resources Control Board

NPDES Wastewater@waterboards.ca.gov

and the

U.S. EPA Region 9 Pretreatment Coordinator

R9Pretreatment@epa.gov

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-10. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
Standard Reporting Requirements			
1	Report of Waste Discharge	**31 ~~March~~ May 2023**	ROWD
2	Analytical Methods Report	**~~9 April 2019~~5 June 2019**	MRP IX.D.3
3	Annual Operations Report	**1 February 2020**	MRP X.D.1
4		**1 February 2021**	MRP X.D.1
5		**1 February 2022**	MRP X.D.1
6		**1 February 2023**	MRP X.D.1
7		**1 February 2024**	MRP X.D.1
Compliance Schedule for Final Effluent Limitations for Methylmercury (WDR Section VI.C.7.a)			
8	Mercury Pollution Prevention Plan Annual Progress Reports[1]	**1 February 2020**	WDR VI.C.3.a
9		**1 February 2021**	WDR VI.C.3.a
10		**1 February 2022**	WDR VI.C.3.a
11		**1 February 2023**	WDR VI.C.3.a
12		**1 February 2024**	WDR VI.C.3.a
13	Notification of Full Compliance Signed by Legally Responsible Official (LRO)	**31 December 2030**	WDR VI.C.7.a
Other Reports			

Report #	Technical Report	Due Date	CIWQS Report Name
19	Salinity Evaluation and Minimization Plan Summary	**31 ~~March~~ May 2023**	WDR VI.C.3.c
20	Chronic Whole Effluent Toxicity Most Sensitive Species Re-Screening	**31 ~~March~~ May 2023**	MRP V~~I~~.E
21	Annual Pretreatment Reports	**28 February 2020**	MRP X.D.2
22		**28 February 2021**	MRP X.D.2
23		**28 February 2022**	MRP X.D.2
24		**28 February 2023**	MRP X.D.2

[1.] Beginning 1 February 2020 and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on the previously-submitted pollution prevention plan for mercury. This annual report may be combined with the Annual Operations Report and submitted as one report. The progress reports shall discuss the effectiveness of the pollution prevention plan in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the pollution prevention plan.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet 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	5B070101001
CIWQS Facility Place ID	210322
Discharger	City of Brentwood
Name of Facility	Wastewater Treatment Plant
Facility Address	2251 Elkins Way
	Brentwood, CA 94513
	Contra Costa County
Facility Contact, Title and Phone	Casey Wichert, Wastewater Operations Manager, (925) 516-6070
Authorized Person to Sign and Submit Reports	Casey Wichert, Wastewater Operations Manager, (925) 516-6070
Mailing Address	Same as Facility Address
Billing Address	Same as Facility Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Yes
Recycling Requirements	Recycling regulated under State Water Resources Control Board (State Water Board) Water Quality Order 2014-0090-DWQ, General Waste Discharge Requirements for Recycled Water Use
Facility Permitted Flow	Existing Plant: 5.0 million gallons per day (MGD), average dry weather flow Expanded Plant: 6.4 MGD, average dry weather flow
Facility Design Flow	Existing Plant: 5.0 MGD, average dry weather flow Expanded Plant: 6.4 MGD, average dry weather flow
Watershed	Sacramento-San Joaquin Delta
Receiving Water	Marsh Creek
Receiving Water Type	Estuary

A. The City of Brentwood (hereinafter Discharger) is the owner and operator of the City of Brentwood 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 Marsh Creek, a water of the United States within the Sacramento-San Joaquin Delta. The Discharger was previously regulated by Order R5-2013-0106-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084271 adopted on 26 July 2013 and amended on 9 October 2014 and 17 April 2015, with an expiration date of 1 September 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 16 January 2018. The application was deemed complete on 31 October 2018.

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. However, 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 City of Brentwood and serves a population of approximately 63,042. The Facility's current design daily average flow capacity for tertiary treated wastewater is 5.0 MGD, with plans to expand the capacity to 6.4 MGD (as discussed below in Section II.E.).

A. Description of Wastewater and Biosolids Treatment and Controls

The Facility is currently being upgraded for an expansion of the flow capacity. The treatment system at the Facility consists of a headworks (screening and grit removal), anoxic basins (two existing, three after completed expansion), two extended aeration activated sludge basins, two denitrification basins, two secondary clarifiers, two banks of two single media filters (total of four filters), chlorine disinfection, dechlorination, and a cascade aeration system for discharge of tertiary treated effluent to Marsh Creek. Specific details of the upgrades are included below in Section II.E.

Sludge is mixed with a polymer and dewatered using a belt filter press. Dried biosolids are hauled off-site for disposal at the Vasco Road Landfill located in the City of Livermore. Once the expansion upgrades are complete, the Discharger intends to implement heat drying as a means of producing Class A biosolids, as well as provide diverse options for biosolids disposal. Occasionally, the Discharger will dispose of biosolids at the Potrero Hill Landfill in Suisun City; however, the Vasco Road Landfill is the primary disposal location. The Facility produces approximately 942 dry metric tons of biosolids annually. As part of the Facility expansion, a solids storage facility will be constructed to provide a storage volume sufficient

for 6 months at buildout conditions. 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 Section 6, T1N, R3E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to Marsh Creek, a water of the United States, within the legal boundary of the Sacramento-San Joaquin Delta, at a point latitude 37° 57' 46.10" N and longitude 121° 41' 2.59" W.

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

Effluent limitations contained in Order R5-2013-0106-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2013-0106-01 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (September 2014 – August 2017)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	5.0[1]	--	--	5.08[2]
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	7	12	15	6.3	7.9	11.6
	lbs/day[3]	292	500	625	130	215	266
	% Removal	85	--	--	95[4]	--	--
pH	standard units	--	--	6.5 – 8.5	--	--	6.9 – 8.1
Total Suspended Solids	mg/L	10	15	20	3.5	5.9	9.4
	lbs/day[3]	417	625	834	61	90	192
	% Removal	85	--	--	93.5[4]	--	--
Priority Pollutants							
Bis (2-Ethylhexyl) Phthalate	µg/L	5.9	--	12	3.0	--	3.0
Copper, Total Recoverable	µg/L	14	--	10.4	8.0	--	8.0
Dibromochloromethane	µg/L	34	--	62	59	--	59
Mercury, Total Recoverable	grams/year	34[5]	--	--	2.1[6]	--	--
Non-Conventional Pollutants							
Ammonia, Total (as N)	mg/L	1.1	--	2.1	0.54	--	1.51
	lbs/day[3]	46	--	88	12.8	--	27.7
Chloride	mg/L	--	--	517[7]	--	--	493
	mg/L	344	--	398	--	--	--
Chlorine, Total Residual	mg/L	--	0.011[8]	0.019[8]		0[23]	0[23]
Chlorpyrifos	µg/L	[9]	--	[10]	ND	--	ND
Diazinon	µg/L	[9]	--	[10]	ND	--	ND

Parameter	Units	Effluent Limitation			Monitoring Data (September 2014 – August 2017)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Dissolved Oxygen	mg/L	--	--	5.5[11]	--	--	5.9[12]
Methylmercury	grams/year	0.14[13]	--	--	--	--	--
Temperature	°F	--	--	[14]	--	--	21[15]
Total Coliform Organisms	MPN/100 mL	2.2[16]	23[17]	240[18]	--	--	21
Acute Toxicity	% Survival	--	--	70[19]/90[20]	--	--	95[21]
Chronic Toxicity	TUc	--	--	[22]	--	--	>1

ND – Non-Detect

NR – Not Reported

1 Applied as an average dry weather flow effluent limitation.

2 Represents the maximum observed daily discharge.

3 Based on an average dry weather flow of 5.0 MGD.

4 Represents the minimum reported percent removal.

5 Interim annual mass loading effluent limitation, effective until 31 December 2030.

6 Represents the maximum total calendar annual mass load.

7 Interim effluent limitation in effect until 1 January 2018, per compliance schedule.

8 Applied as a 1-hour average effluent limitation.

9 Average Monthly Effluent Limitation

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

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

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

10 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.

11 The daily average effluent dissolved oxygen concentration shall not be less than 5.5 mg/L.

12 Represents the minimum reported daily average effluent dissolved oxygen concentration.

13 Final annual mass loading effluent limitation effective 31 December 2030.

14 The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F from 1 February through 30 November and 24°F from 1 December through 31 January.

15 Reflects the maximum difference between the effluent and natural receiving water temperature at Monitoring Locations EFF-001 and RSW-001, respectively.

16 Applied as a 7-day median effluent limitation.

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

18 Applied as an instantaneous maximum effluent limitation.

19 Minimum percent survival for any one bioassay.

20 Median percent survival of three consecutive acute bioassays.

21 Represents the minimum observed percent survival.

22 There shall be no chronic toxicity in the effluent.

23 Sodium bisulfite is measured to evaluate compliance with chlorine residual limits.

D. Compliance Summary

The Central Valley Water Board issued Administrative and Civil Liability (ACL) Complaint R5-2014-0549 on 8 September 2014, which proposed to asses a civil liability of $12,000 against the Discharger for effluent violations for dibromochloromethane that occurred from the period 1 May 2013 through 31 March 2014 under Orders R5-2008-0006-01 and R5-2013-0106-01. The Discharger paid the mandatory minimum penalty of $12,000.

E. Planned Changes

The Discharger is planning to expand the Facility to increase the treatment capacity from an average dry weather flow capacity of 5.0 MGD to an average dry weather flow capacity of 6.4 MGD to accommodate future increased wastewater inflows associated with development and population growth identified in the Discharger's General Plan. A design average dry weather treatment capacity of 6.4 MGD will also support the continued production of CCR, division 4, chapter 3 (Title 22) recycled water sufficient for landscape irrigation demands identified for the Discharger's Recycled Water Project and irrigation demands of future development areas identified in the Discharger's General Plan. The Discharger's Recycled Water Project will support an estimated total of 1,946 acre-feet per year of recycled water demand for landscape irrigation uses identified by the Discharger.

The Discharger has identified the following process upgrades that are necessary to expand the treatment capacity of the Facility and reduce concentrations of trihalomethanes in the effluent.

1. **Secondary Treatment Upgrades.** The Discharger is planning to construct a new rectangular staged basin with diffused air and retrofit the two existing oxidation ditches into staged basins with diffused air. In addition, a third 110 foot diameter secondary clarifier and return activated sludge (RAS) pump station will be constructed. The RAS pump station will include two additional RAS pumps and two additional scum pumps.
2. **Tertiary Treatment Upgrades.** In order to accommodate buildout flows, provide redundancy, and increase tertiary treatment capacity, the Discharger will add one filter feed pump to the tertiary filtration facilities.
3. **Disinfection Upgrades.** In order to reduce the formation of trihalomethanes, the Discharger plans to upgrade the chlorine disinfection facilities to utilize free chlorine with a lower CT (the product of chlorine concentration and contact time). A report documenting the study supporting the use of this approach was submitted to the State Water Board, Division of Drinking Water (DDW) on 9 June 2017. The Discharger received conditional approval of the approach from DDW in a letter dated 2 November 2017.
4. **Biosolids Treatment, Storage, and Disposal Upgrades.** The Discharger intends to implement heat drying as a means of producing Class A biosolids, as well as diversify options for biosolids disposal. As part of the Facility expansion, a solids storage facility will be constructed to provide a storage volume sufficient for 6 months at buildout conditions. The upgraded biosolids disposal system will involve a dump truck being loaded with dried product by a discharge conveyor from the dryer. The truck will then transport the material to the storage building, where a front end loader will move the dried product into storage. The storage building will be located immediately east of the existing chlorine contact basins, which will minimize dust exposure to properties located south of the Facility. The storage building floor will be constructed of concrete.

The Discharger plans to begin construction of the above Facility upgrades in June 2019 and complete construction by May 2022. In addition to the above changes, the Discharger plans

to construct a 3 million-gallon recycled water storage tank, to be completed by December 2019.

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, Fifth Edition* (Revised May 2018), 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 implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). However, footnote 9 to Table II-1 within the Basin Plan designates specific beneficial uses for Marsh Creek, per State Water Board Resolution 90-26. In addition, a review of the State Water Board Division of Water Rights' Electronic Water Rights Information Management System (eWRIMS) indicated that there are no agricultural or municipal water diversions in Marsh Creek downstream of the discharge. Therefore, State Water Board Resolution 88-63 is not applicable for discharges to Marsh Creek. Beneficial uses applicable to Marsh Creek within the Sacramento-San Joaquin Delta are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Marsh Creek	Existing: Warm freshwater habitat (WARM); wildlife habitat (WILD); rare, threatened or endangered species habitat (RARE); and commercial and sport fishing (COMM). Potential: Water contact recreation (REC-1) and non-contact water recreation (REC-2).

b. **Bay-Delta Plan**. The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) was adopted in December 2006 by the State Water Board, superseding the 1995 Bay-Delta Plan. The Bay-Delta Plan identifies the beneficial uses of the estuary and includes objectives for flow, salinity, and endangered species protection.

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

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

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

"*5. Estuaries*

A. Existing dischargers

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

a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.

b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

d. Additional limitations shall be imposed when necessary to assure protection of beneficial uses."

The Thermal Plan allows regional boards to provide exceptions to specific water quality objectives in the Thermal Plan so long as the exceptions comply with CWA section 316(a) and federal regulations. The applicable exception is promulgated in 40 C.F.R. section 125.73(a), which provides that, "*Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the Discharger demonstrates to the satisfaction of the director that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the Discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made*." The Thermal Plan requires that the State Water Board concur with any exceptions prior to them becoming effective.

The Discharger submitted a January 2010 Thermal Plan Exception Report (Report) to the Central Valley Water Board. Within the Report, the Discharger requested exceptions to Thermal Plan objectives 5.A.(1)a, 5.A.(1)b, and 5.A.(1)c to include the following final temperature effluent and receiving water limitations applicable to discharges from the Facility at Discharge Point 001:

i. Exception to section 5.A.(1)a:

"***d. Temperature.*** *The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than:*

i. 20°F from 1 February through 30 November; or

ii. 24°F from 1 December through 31 January."

ii. Exception to sections 5.A.(1)b and 5.A.(1)c:

"***16. Temperature***

a. Surface water temperature, as measured at Monitoring Location RSW-002, to raise greater than 5°F above the natural temperature of the receiving water on a monthly average basis for the months of March through September.

b. The receiving water temperature, as measured at Monitoring Location RSW-002, to exceed:

i. 74°F as a monthly average for October;

ii. 72°F as a monthly average for November;

iii. 65°F as a period average for 1 December through 28 February."

The Report was submitted to the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) for review. Approval of the 2010 Thermal Plan exception was provided by NMFS on 19 August 2011 and USFWS on 31 January 2013. USFWS recommended that for future permit renewals, additional temperature monitoring and/or analyses would be useful to evaluate the thermal effects of the

discharge to Delta Smelt in lower Marsh Creek near Big Break. Order R5-2013-0106-01 required a temperature study to implement USFWS's recommendation and included effluent and receiving water limitations implementing the Thermal Plan exception.

On 27 November 2017, the Discharger submitted a study titled *Temperature Monitoring Report and Evaluation of the Effects of the Brentwood Wastewater Treatment Plant Discharge on Delta Smelt Rearing Habitat in Lower Marsh Creek* (Temperature Study), in accordance with the recommendation provided by USFWS. The Temperature Study presented the results of a Marsh Creek temperature monitoring effort that occurred from February 2013 through June 2014, characterized the effects of the Facility's discharge on Marsh Creek's seasonal temperature regime between Discharge Point 001 and Big Break, identified the extent of the tidal intrusion into lower Marsh Creek, and qualitatively characterized the habitat for juvenile Delta Smelt within lower Marsh Creek. Based on the technical findings of the Temperature Study, the alternative effluent and receiving water limitations resulting from the proposed Thermal Plan exception, at the Discharger's currently permitted discharge rate of 5.0 MGD, would have no measurable adverse effects on Primary Constituent Elements identified by USFWS (i.e., physical habitat, water, river flow, or salinity concentrations) for juvenile Delta Smelt rearing habitat in the tidal portion of lower Marsh Creek. Moreover, the Temperature Study concluded that the Thermal Plan exceptions would maintain suitable Delta Smelt spawning and rearing habitat conditions in lower Marsh Creek. The November 2017 study was provided to USFWS staff. No comments or objections were provided by the USFWS.

The temperature effluent and receiving water limitations from the previous permit (Order R5-2013-0106-01) have been retained in this Order, based on the January 2010 and November 2017 temperature studies, for up to a design and permitted average dry weather flow of 5.0 MGD.

As described in section II.E of this Fact Sheet, the Discharger is requesting an increase in the permitted average dry weather discharge flow from 5.0 MGD to 6.4 MGD. Therefore, the Discharger has updated the existing temperature studies to consider the requested flow increase and address the potential impacts it may have to the Delta Smelt habitat within Marsh Creek. On 2 July 2018, the Discharger submitted an updated Thermal Plan Exception Justification Report. The updated study's scientific approach is consistent with the Discharger's 2010 and 2017 temperature studies that were reviewed by NMFS and USFWS staff. The updated study has been improved by considering additional effluent and receiving water temperature data and evaluates the effect of the discharge at the current design flow of 5 MGD and proposed increased design flow of 6.4 MGD.

Central Valley Regional Board staff have requested assistance from NMFS and USFWS staff to review the July 2018 temperature study. Upon completion of their reviews Board staff plan to present the Thermal Plan Exceptions to the State Water Board for concurrence. If the State Water Board concurs with the exceptions, the new temperature effluent and receiving water limits, as shown below, will be automatically in effect.

iii. The maximum temperature of the discharge shall not exceed the natural receiving water temperature at Monitoring Location RSW-001 by more than:

a) 20°F from 1 February through 30 November; or

b) 23°F from 1 December through 31 January."

iv. The d~~D~~ischarge shall not cause an exceedance of the following ~~in~~ receiving water temperatures at Monitoring Location RSW-002~~Marsh Creek~~:

Month	Maximum RSW-002 Monthly Average Temperature (°F)
January	66
February	66
March	70
April	72
May	74
June	76
July	78
August	78
September	78
October	76
November	72
December	67

The Central Valley Water Board has considered the applicability of the Thermal Plan exceptions for the Facility's discharge. Based on all evidence in the record the Board finds that the Discharger has adequately demonstrated through comprehensive thermal effect studies that the effluent and receiving water limitations based on the Thermal Plan are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. The Board also finds that the alternative limitations, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on Marsh Creek and the Delta.

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

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

CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, 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 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, including protecting rare, threatened, or endangered species. 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), 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 2018, U.S. EPA gave final approval to California's 2014-2016 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of 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 Marsh Creek (Marsh Creek Reservoir to San Joaquin River) includes indicator bacteria, mercury, and toxicity.

2. **Total Maximum Daily Loads (TMDL’s).** Table F-4, below, identifies the 303(d) listings and TMDL’s for Marsh Creek and the western portion of the Sacramento-San Joaquin Delta. This permit 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-4. 303 (d) List for Marsh Creek (Marsh Creek Reservoir to San Joaquin River) and the Sacramento-San Joaquin Delta (Western Portion)

Pollutant	Potential Sources	TMDL Status
Sacramento-San Joaquin Delta (Marsh Creek Reservoir to San Joaquin River; partly in Delta Waterways, Western Portion)		
Mercury	Resource Extraction	Adopted and Effective (20 October 2011)
Indicator Bacteria	Source Unknown	Planned for Completion (2023)
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 Title 27, CCR section 20090(a), is based on the following:

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

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

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

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-4.27 contains an implementation policy, "*Policy for Application of Water Quality Objectives*," that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 C.F.R. section 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) U.S. EPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "*Policy for Application of Water Quality Objectives*")(40 C.F.R. section 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at 3.1.20) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCL's)*" in Title 22 of the 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 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. This prohibition also accounts for the permitted increase in the design average dry weather flow treatment capacity rating following completion of the Facility expansion project and compliance with Special Provision VI.C.6.b of this Order. Previous Order R5-2013-0106-01 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. Compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

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

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

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

level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal regulations at 40 C.F.R. part 133 establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. 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 of dissolved oxygen and pathogens, which include 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 Point 001

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

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
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.c of this Fact Sheet.

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

1. Scope and Authority

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

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for MUN. Footnote 9 to Table II-1 within the Basin Plan designates specific beneficial uses for Marsh Creek, per State Water Board Resolution 90-26. Therefore, State Water Board Resolution 88-63 is not applicable to the discharge to Marsh Creek.

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, shellfish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected, and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water and Beneficial Uses.** The Discharger discharges to Marsh Creek within the legal boundary of the Sacramento-San Joaquin Delta. The Marsh Creek watershed encompasses the cities of Oakley, Brentwood, and part of Antioch in eastern Contra Costa County, draining approximately 128 square miles of

rangeland, farmland, and urban land. Marsh Creek flows from its headwaters in Morgan Territory to its mouth at Big Break within the western portion of the Sacramento-San Joaquin Delta. Marsh Creek is an important ecological link between the Sacramento-San Joaquin Delta and the Diablo Range, providing critical habitat for threatened and endangered species including the Delta Smelt and five federally-listed salmon species. The Facility discharges to the lower portion of Marsh Creek, below the Marsh Creek Reservoir, which was channelized in the 1950's and 1960's in order to control flooding.

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

b. **Effluent and Ambient Background Data.** The RPA, as described in section IV.C.3 of this Fact Sheet, was based on data from September 2014 through August 2017, which includes effluent and ambient background data submitted in SMR's.

c. **Assimilative Capacity/Mixing Zone.** The Central Valley Water Board finds, based on the available information, that Marsh Creek, absent the discharge from the Facility, is a low-flow/intermittent stream. The ephemeral nature of Marsh Creek 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.

The Discharger has not submitted flow data or a mixing zone/dilution study requesting dilution credits. Thus, consistent with the assumptions used for Order R5-2013-0106-01, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that effluent limitations are applied end-of-pipe, with no allowance for dilution within the receiving water.

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

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

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP[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

[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. §131.3(c)(4)(ii)

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).[1] 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.[2] 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.[3] 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, Marsh Creek is effluent-dominated. Under these regularly occurring critical conditions, the effluent is the receiving water that is used to define the ambient receiving water conditions and 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). The ambient hardness for Marsh Creek is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 69 mg/L to 394 mg/L based on all collected ambient data from September 2014 through August 2017. Given the high variability in ambient hardness values, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum). Because of this variability, staff has determined that based on the ambient hardness concentrations measured in the receiving water, the Central Valley Water Board has discretion to select ambient hardness values within the range of 69 mg/L (minimum) up to 394 mg/L (maximum). Staff recommends that the Central Valley Water Board use the ambient hardness values shown in Table F-6 for the following reasons.

(a) The ambient receiving water hardness values shown in Table F-6 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

[1] 40 C.F.R. §131.38(c)(2)(iii) Table 4
[2] 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2
[3] 40 C.F.R. §131.38(c)(2)(i)

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, Central Valley Water Board staff has used the ambient hardness values shown in Table F-6 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.

(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 Marsh Creek, 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-6 is consistent with the CTR and SIP's requirements for developing metals criteria.

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

CTR Metals	Ambient Hardness (mg/L)[2]	CTR Criteria (µg/L, total recoverable)[1]	
		Acute	Chronic
Copper	180	24	15
Chromium III	180	2,800	330
Cadmium	170 (acute) 180 (chronic)	8.2	3.9
Lead	162	150	5.9
Nickel	180	770	86
Silver	144	7.6	--
Zinc	180	200	200

[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.

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:

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

Where:

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

WER = water-effect ratio

m, b = metal- and criterion-specific constants

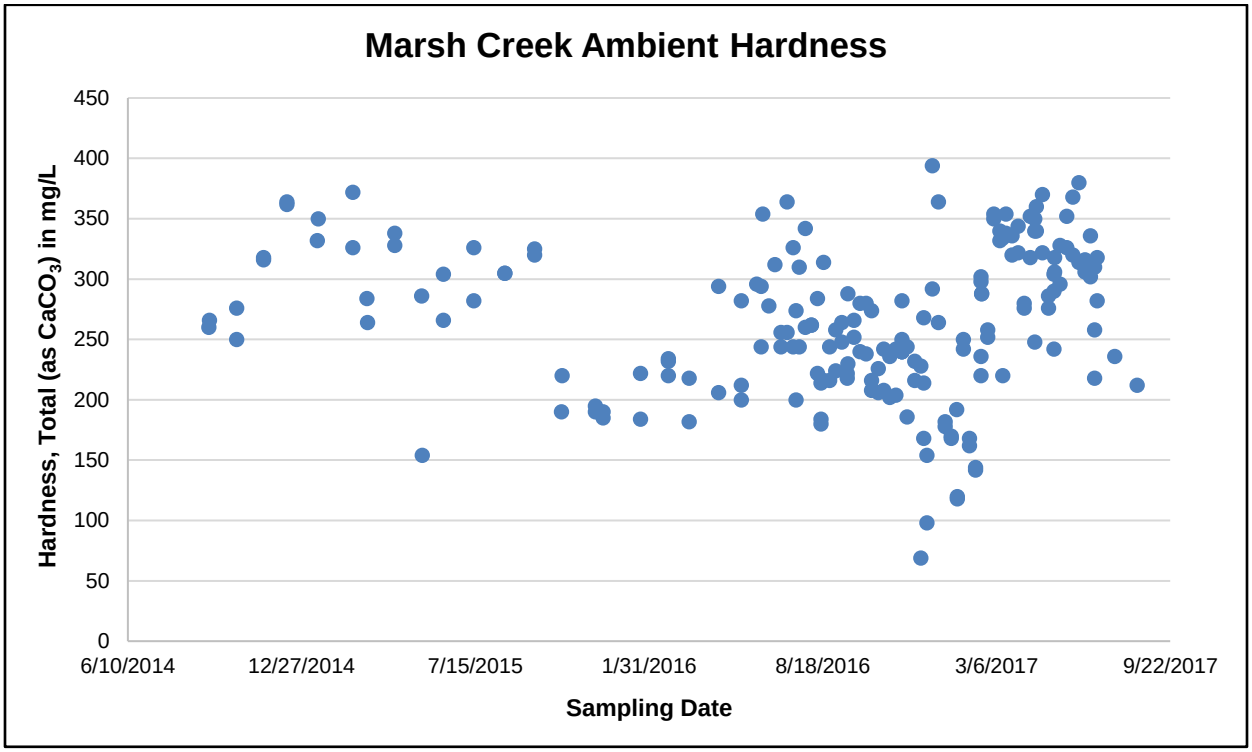
The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected "design" hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a 3-year period.[2] Design flows for aquatic life criteria include the 1Q10 and the 7Q10. Since Marsh Creek is considered an effluent-dominated water body, the critical design flow is zero.

iii. **Ambient Conditions**

The ambient receiving water hardness varied from 69 mg/L to 394 mg/L based on 190 samples from September 2014 through August 2017 (see Figure F-1).

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

Figure F-1. Observed Ambient Hardness Concentrations 69 mg/L – 394 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.

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.

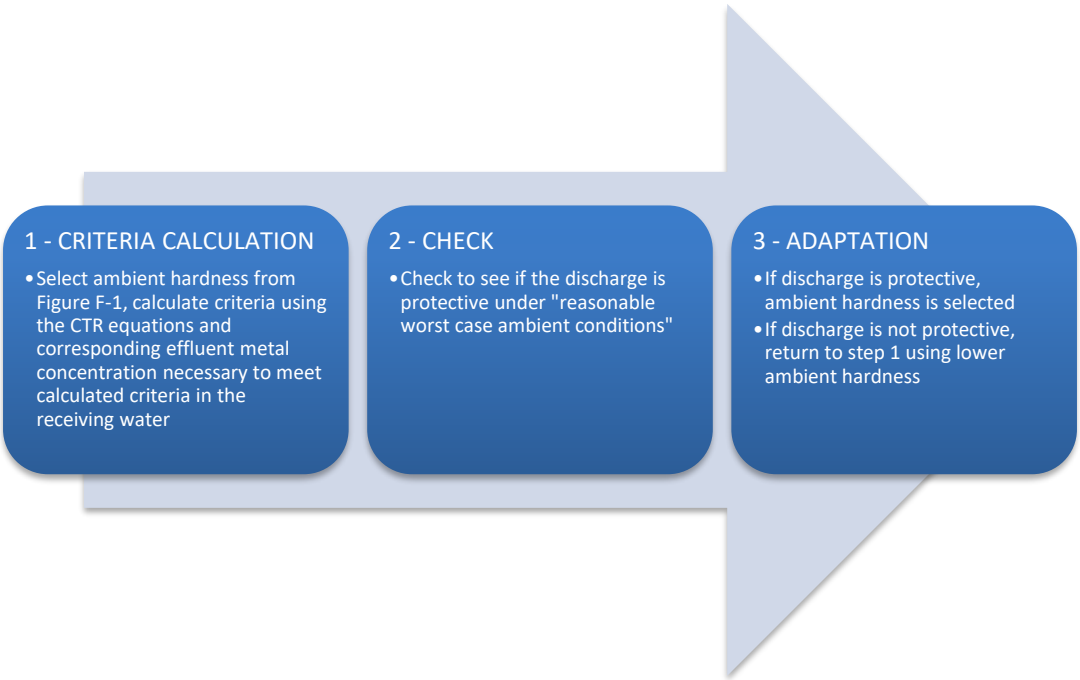
(b) "High receiving water flow (maximum receiving water flow)." This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.

(c) "Low receiving water hardness." The minimum receiving water hardness condition of 69 mg/L was selected to represent the reasonable worst-case receiving water hardness.

(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 does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

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

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



(a) CRITERIA CALCULATION. CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 394 mg/L. 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 bullet 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, 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 Analysis**

The above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-6, above. Using these hardness values to calculate criteria, which are actual ambient sample results, will result in effluent limitations that are protective under all ambient flow conditions. Copper and silver are used as examples below to illustrate the results of the analysis. Tables F-7 and F-8, below, summarize the numeric results of the three-step iterative approach for copper and silver. As shown in the example tables, ambient hardness values of 180 mg/L (copper) and 144 mg/L (silver) are used in the CTR equations to derive criteria and effluent limitations. Then, under the "check" step, worst-case ambient receiving water conditions are used to test whether the 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 result in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-7 and F-8 summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

[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)

Table F-7. Verification of CTR Compliance for Copper

Receiving water hardness used to compute effluent limitations				180 mg/L
Effluent Concentration Allowance (ECA) for Copper[1]				15 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Copper Concentration[2] (µg/L)	
1Q10	180	15.4	15.4	**Yes**
7Q10	180	15.4	15.4	**Yes**
Max receiving water flow	70	6.9	6.9	**Yes**

1 The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for copper as it demonstrates no reasonable potential.

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-8. Verification of CTR Compliance for Silver

Receiving water hardness used to compute effluent limitations				144 mg/L
Effluent Concentration Allowance (ECA) for Silver[1]				7.6 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Silver Concentration[2] (µg/L)	
1Q10	180	11.2	7.6	**Yes**
7Q10	180	11.2	7.6	**Yes**
Max receiving water flow	70	2.2	2.2	**Yes**

1 The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for silver as it demonstrates no reasonable potential.

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

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*." The process to determine whether a WQBEL is required 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 Load (TMDL).** The Central Valley Water Board developed WQBEL's for diazinon and chlorpyrifos and methylmercury that have available WLA's under TMDL's. 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 Marsh Creek.

(b) **RPA Results.** Diazinon was not detected in the effluent based on 10 samples collected between September 2014 and August 2017. Diazinon was not detected in the upstream receiving water based on two samples collected between September 2014 and August 2017.

Chlorpyrifos was not detected in the effluent based on eight samples collected between September 2014 and August 2017. Chlorpyrifos was not detected in the upstream receiving water based on one sample collected between September 2014 and August 2017.

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. The TMDL WLA applies to all NPDES dischargers to Delta waterways and will serve as the basis for WQBEL's for this Facility.

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

(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 in the effluent. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Mercury**

(a) **WQO.** The Basin Plan contains fish tissue objectives for all Sacramento-San Joaquin Delta waterways listed in Appendix 43 of the Basin Plan, which states, "*…the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kg, wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150-500 mm total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length.*" The Delta Mercury Control Program contains aqueous methylmercury WLA's that are calculated to achieve these fish tissue objectives. Methylmercury reductions are assigned to dischargers with concentrations of methylmercury greater than 0.06 ng/L (the concentration of methylmercury in water to meet the fish tissue objective). The Facility is allocated 0.14 grams/year of methylmercury by 31 December 2030, as listed in Table IV-7B of the Basin Plan.

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

(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 MEC for mercury was 1.4 ng/L based on 38 samples collected between September 2014 and August 2017. The maximum observed upstream receiving water mercury concentration was 1.6 ng/L based on one sample collected between September 2014 and August 2017.

Methylmercury was not detected in the effluent based on 38 samples collected between September 2014 and August 2017. The maximum observed upstream receiving water methylmercury concentration was 0.04 ng/L based on one sample collected between September 2014 and August 2017.

(c) **WQBEL's.** The Basin Plan's Delta Mercury Control Program includes WLA's for POTW's in the Delta, including for the Discharger. This Order contains a final WQBEL for methylmercury based on the WLA. Effective 31 December 2030, the total calendar annual methylmercury load shall not exceed 0.14 grams.

(d) **Plant Performance and Attainability.** A compliance schedule in accordance with the State Water Board's Compliance Schedule Policy and the Delta Mercury Control Program has been established in section VI.C.7.a of this Order. The final WQBEL's for methylmercury are effective 31 December 2030.

b. **Constituents with No Reasonable Potential.** Central Valley Water Board staff conducted RPA's for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. All RPA's are included in the administrative record and a summary of the constituents of concern is provided in Attachment G. WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an 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. **Bis (2-Ethylhexyl) Phthalate**

(a) **WQO.** The CTR includes a criterion of 5.9 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which only organisms are consumed. Order R5-2013-0106-01 included effluent limitations for bis (2-ethylhexyl) phthalate based on the CTR criterion.

(b) **RPA Results.** The MEC for bis (2-ethylhexyl) phthalate was 3.0 µg/L based on 19 samples collected between September 2014 and August 2017. Bis (2-ethylhexyl) phthalate was not detected in the upstream receiving water based on two samples collected between September 2014 and August 2017. Therefore, bis (2-ethylhexyl) phthalate in the discharge does not exhibit reasonable potential to cause or

contribute to an in-stream excursion above the CTR criterion for the protection of human health and effluent limitations for bis (2-ethylhexyl) phthalate 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 this Fact Sheet).

ii. **Copper**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the effluent and receiving water. As described in section IV.C.2.e of this Fact Sheet, the applicable acute and chronic criteria for copper in the effluent are 24 µg/L and 15 µg/L, respectively, as total recoverable. Order R5-2013-0106-01 included effluent limitations for copper based on the CTR criteria.

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

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

(b) **RPA Results.** The MEC for copper was 8.0 µg/L (as total recoverable) based on 16 samples collected between September 2014 and August 2017. The maximum observed upstream receiving water concentration was 4.2 µg/L (as total recoverable) based on one sample collected between September 2014 and August 2017. 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 or the Basin Plan objective, and the effluent limitations for copper have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Cyanide**

(a) **WQO.** The CTR includes a chronic criterion of 5.2 µg/L for cyanide for the protection of freshwater aquatic life.

(b) **RPA Results.** The MEC for cyanide was 9.4 µg/L based on five samples collected between September 2014 and August 2017. The maximum observed upstream receiving water concentration for cyanide was 6.3 µg/L based on one sample collected between September 2014 and August 2017.

The Discharger used analytical method Standard Method 4500-CN C/E-99 to analyze the effluent and receiving water cyanide samples. Standard Method 4500 states, "*Nitrite may form HCN during distillation in Methods C, G, and L, by reacting with organic compounds. Also, NO_3^- may reduce NO_2^-, which interferes. To avoid NO_2^- interference, add 2 g sulfamic acid to the sample before distillation. Nitrate also may interfere by reacting with SCN^-.*" The preservative used for cyanide samples, sodium hydroxide, has also been shown to cause false positives, as documented in the white paper *Problems Associated with Using Current EPA Approved Total Cyanide Analytical Methods for Determining Municipal Wastewater Treatment Plant NPDES Permit Compliance*.

The Discharger conducted a special study to analyze preserved and unpreserved effluent cyanide samples in order to address the issue of interference caused by the preservative. Seven effluent samples and two additional samples collected upstream of the chlorine contact basin were analyzed for cyanide using Standard Method 4500-CN C/E-99. The samples were split, with one split sample preserved using sodium hydroxide, according to the method requirement, and the other split sample left unpreserved. As shown in the table below, the unpreserved sample cyanide concentrations were less than the preserved sample concentrations in all but one case and all unpreserved sample cyanide concentrations were less than the CTR chronic aquatic life criterion of 5.2 µg/L.

Table F-9. Cyanide Special Study Results

Sample Date	Pre-Chlorinated Wastewater		Final Effluent (Chlorinated and Dechlorinated)	
	Preserved Sample (µg/L)	Unpreserved Sample (µg/L)	Preserved Sample (µg/L)	Unpreserved Sample (µg/L)
15 August 2017	--	--	0.921 J	<0.90
29 August 2017	--	--	2.3 J	0.92 J
12 September 2017	--	--	1.3 J	ND
26 September 2017	--	--	8.6	4.2
10 October 2017	--	--	2.1 J	3.0
24 October 2017	<0.90	<0.90	<0.90	<0.90
7 November 2017	1.1 J	0.71 J	4.4	2.7 J

J – Reflects estimated analytical result value detected below the reporting level (RL) and above the method detection limit (MDL).

Section 1.2 of the SIP requires that the Regional Water Board use all available, valid, relevant, representative data and information, as determined by the Regional Water Board, to implement the SIP. Section 1.2 of the SIP further states that the Central Valley Water Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP. Based on the results of the Discharger's special study, the Central Valley Water Board suspects that effluent and receiving water cyanide samples collected between September 2014 and

August 2017 were subject to interference caused by the sodium hydroxide preservative and are inappropriate and insufficient for determining reasonable potential under the SIP. Based on the results of the Discharger's study using unpreserved cyanide samples, which were all below the applicable CTR criterion, the Central Valley Water Board finds that cyanide in the effluent does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, BOD_5, chloride, chlorine residual, dibromochloromethane, dichlorobromomethane, dissolved oxygen, pH, temperature, 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 National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

The U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the "2013 Criteria").[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 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

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

Study. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan's narrative toxicity objective. The 1999 NAWQC for the protection of freshwater aquatic life for total ammonia recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Steelhead (*Onchorynchus mykiss*) and winter and spring run chinook (*Onchorynchus tshawytsha*) are two of the five federally-listed species in Marsh Creek that belong to the salmon family. Therefore, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.5, as the Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

A chronic criterion was calculated for each day when paired temperature data and pH were measured using downstream receiving water data for temperature and pH. 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. The most stringent 30-day CCC was 1.35 mg/L (as N). 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 1.35 mg/L (as N), the 4-day average concentration that should not be exceeded is 3.38 mg/L (as N).

(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. Therefore, while the LTA's corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then

selected for deriving the AMEL and the AWEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and AWEL for ammonia of 0.86 mg/L and 1.7 mg/L, respectively, based on the NAWQC.

(d) **Plant Performance and Attainability.** The Facility is designed to provide tertiary treatment and fully nitrify the wastewater. Therefore, the Central Valley Water Board finds that immediate compliance with the final effluent limits for ammonia 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 water. Reasonable potential, therefore, exists and effluent limits are required.

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

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

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

(c) **WQBEL's.** The U.S. EPA TSD contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to AMEL's and maximum daily effluent limitations (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, based on U.S. EPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) **Plant Performance and Attainability.** The Discharger uses sodium bisulfite to dechlorinate the effluent prior to discharge to Marsh Creek. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iii. **Dibromochloromethane**

(a) **WQO.** The CTR includes a criterion of 34 µg/L for dibromochloromethane for the protection of human health for waters from which only organisms are consumed. Order R5-2013-0106-01 included effluent limitations for dibromochloromethane based on the CTR human health criterion.

(b) **RPA Results.** The MEC for dibromochloromethane was 59 µg/L based on 80 samples collected between September 2014 and August 2017. The maximum observed upstream receiving water dibromochloromethane concentration was 28 µg/L based on one sample collected between September 2014 and August 2017. Therefore, dibromochloromethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the applicable CTR criterion for the protection of human health.

(c) **WQBEL's.** This Order contains a final AMEL and MDEL for dibromochloromethane of 34 µg/L and 83 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent data for dibromochloromethane shows that the MEC of 59 µg/L is greater than the applicable WQBEL's. The Discharger submitted a 16 January 2018 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for dibromochloromethane. Therefore, the Discharger is subject to TSO **R5-2019-XXXX**, which provides a compliance schedule to achieve compliance with the final effluent limitations for dibromochloromethane by **31 May 2024**.

iv. **Dichlorobromomethane**

(a) **WQO.** The CTR includes a criterion of 46 µg/L for dichlorobromomethane for the protection of human health for waters from which only organisms are consumed.

(b) **RPA Results.** The MEC for dichlorobromomethane was 65 µg/L based on 75 samples collected between September 2014 and August 2017. The maximum observed upstream receiving water dichlorobromomethane concentration was 33 µg/L based on one sample collected between September 2014 and August 2017. Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the applicable CTR criterion for the protection of human health.

(c) **WQBEL's.** This Order contains a final AMEL and MDEL for dichlorobromomethane of 46 µg/L and 99 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent data for dichlorobromomethane shows that the MEC of 65 µg/L is greater than the applicable WQBEL's. The Discharger submitted a 16 January 2018 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for dichlorobromomethane. Therefore, the Discharger is subject to TSO **R5-2019-XXXX**, which provides a compliance schedule to achieve compliance with the final effluent limitations for dichlorobromomethane by **31 May 2024**.

v. **Dissolved Oxygen and Biochemical Oxygen Demand (BOD_5)**

(a) **WQO.** The Basin Plan contains a water quality objective for dissolved oxygen for the Sacramento-San Joaquin Delta of 5.0 mg/L.

(b) **RPA Results.** Marsh Creek is a shallow, warm stream and has known issues with low dissolved oxygen levels. During the development of previous Order 5-00-171, a Streeter-Phelps Dissolved Oxygen Sag Analysis was performed to determine if dissolved oxygen and/or BOD_5 WQBEL's were needed to ensure compliance with the Basin Plan's water quality objective for dissolved oxygen. Based on conservative assumptions, the analysis determined that in order to maintain Marsh Creek dissolved oxygen concentrations at or above the Basin Plan objective, the minimum effluent dissolved oxygen must be 5.5 mg/L, with a maximum BOD_5 concentration of 15 mg/L. Additionally, a monthly average BOD_5 limit of 7.0 mg/L was calculated using the statistical methodology recommended by U.S. EPA's TSD. Therefore, Order 5-00-171 included effluent limitations for BOD_5 of 7 mg/L, 12 mg/L, and 15 mg/L, as an AMEL, AWEL, and MDEL, respectively, and an effluent limitation for dissolved oxygen of 5.5 mg/L, as an instantaneous minimum. The Discharger was also required to conduct a new Dissolved Oxygen Sag Analysis to confirm the re-aeration coefficient and other assumptions used in the original analysis, and after the completion of Facility upgrades, to conduct a final analysis based on the upgraded Facility.

In June 2002, the Discharger submitted the *City of Brentwood Wastewater Treatment Plant Effluent and Receiving Water Study*, which included a Dissolved Oxygen Sag Analysis. The updated study confirmed that the

assumptions used in the original analysis were correct and effluent limitations for BOD_5 were necessary. Further, it was found that the effluent dissolved oxygen should not fall below 5.0 mg/L, unless background ambient dissolved oxygen concentrations were already below 5.0 mg/L, which then required the effluent to not fall below 5.5 mg/L to ensure downstream dissolved oxygen was always at least 5.0 mg/L. Therefore, Orders R5-2008-0006-01 and R5-2013-0106-01 retained the effluent limitations for dissolved oxygen and BOD_5 included in previous Order 5-00-171.

Based on 158 samples collected between September 2014 and August 2017 at Monitoring Location RSW-002, there were seven instances in which dissolved oxygen concentrations in the downstream receiving water were below the water quality objective of 5 mg/L, with results ranging from 4.1 mg/L to 11.5 mg/L and having an average dissolved oxygen concentration of 7.7 mg/L. The range of dissolved oxygen concentrations in upstream receiving water samples collected at Monitoring Location RSW-001 between September 2014 and August 2017 varied between 0.20 mg/L and 16.4 mg/L, with an average of 8.2 mg/L. Based on effluent sampling for dissolved oxygen and oxygen-demanding substances (i.e., BOD_5 and ammonia), the discharge did not cause or contribute to dissolved oxygen violations in the receiving water. The effluent daily average dissolved oxygen in the discharge during those periods ranged between 7.7 mg/L and 8.3 mg/L, while the effluent BOD_5 ranged from 0.7 mg/L to 11.6 mg/L and the MEC for ammonia was 1.5 mg/L.

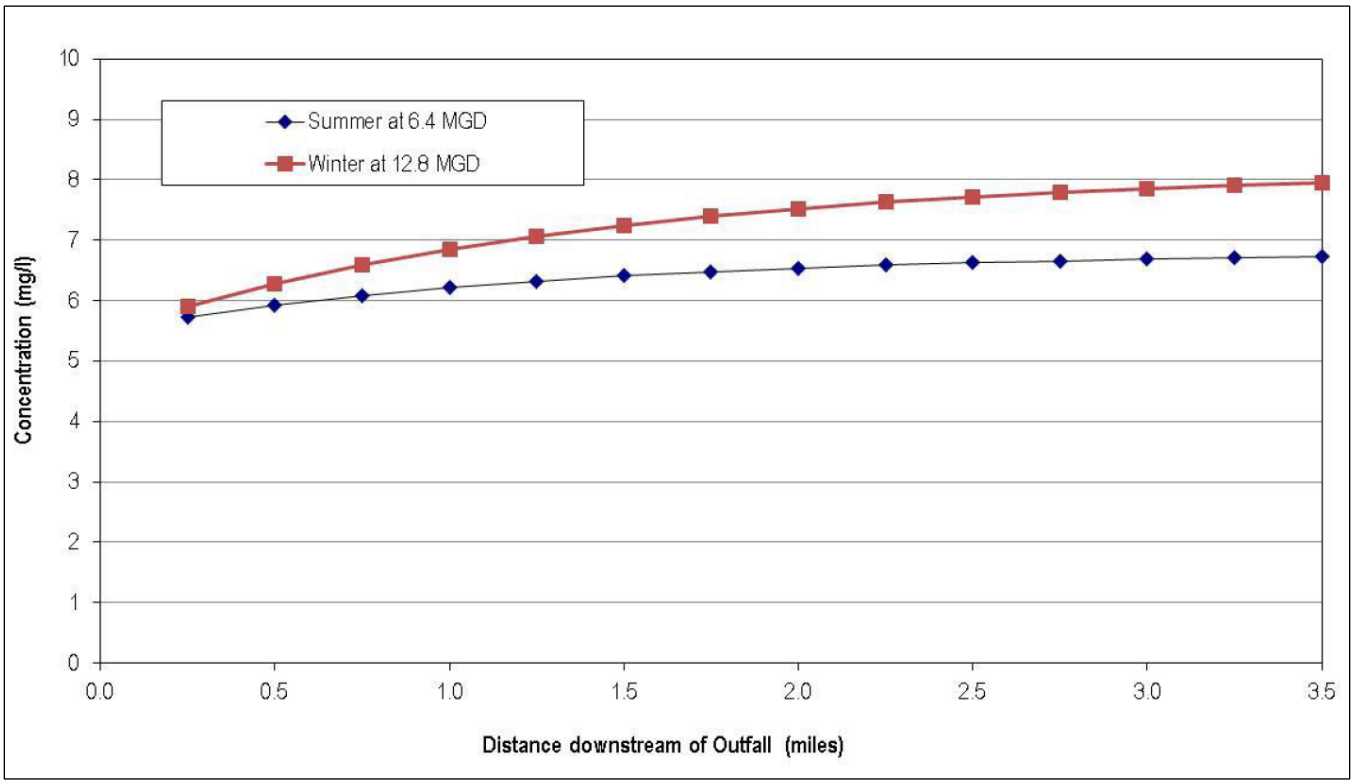
The Dissolved Oxygen Sag Analyses were based on a maximum daily effluent BOD_5 of 15 mg/L. As discussed above, the effluent BOD_5 has remained below this level, so the conditions on which the analysis was based have not occurred.

Additionally, several fish kills have occurred within Marsh Creek over the past 12 years, with the most recent event reported on 23 October 2017. Although the specific causes of these fish kills are unknown, the Central Valley Water Board recognizes the sensitivity of the receiving water and the importance of maintaining sufficient dissolved oxygen levels in order to protect aquatic life within Marsh Creek. Therefore, based on the existing Dissolved Oxygen Sag Analyses, WQBEL's for dissolved oxygen and BOD_5 are needed to ensure that discharge does not cause dissolved oxygen levels downstream of the Facility's outfall to be out of compliance with the Basin Plan objective. Additionally, the Contra Costa Clean Water Program is currently conducting a study titled "Marsh Creek Stressor and Source Identification Study" and a work plan was completed in July 2018 to investigate the potential causes of the fish kills in Marsh Creek via monitoring, data compilation, literature review, and modeling. The study has been divided in 2 Phases. Phase I (February 2018-June 2019) implementation approach began in February of 2018 with the procurement of equipment necessary to establish continuous water quality monitoring stations on Marsh Creek. Phase II (July 2019- June 2020) implementation approach will depend on the findings of Phase I. If Phase I implementation yields conclusive findings that demonstrates an observed fish kill event was caused by lethally low dissolved oxygen associated with the creation

and release of BOD from eutrophic areas upstream of the Discharger, Phase II implementation of the study would continue with dissolved oxygen monitoring and could expand the investigation and documentation of dry weather flow sources. This work would be in preparation to conclude the study and turn over responsibility for longer term dissolved oxygen monitoring and identification of solutions to dry weather discharges and eutrophic conditions to the appropriate Permittees (City of Brentwood, Contra Costa County Flood Control and Water Conservation District, and Unincorporated Contra Costa County). However, if Phase I implementation yields inconclusive findings regarding dissolved oxygen, such as no fish kills observed, or a fish kill observed but measured dissolved oxygen does not explain the event. In that case, Phase II implementation would continue with continuous water monitoring, and could expand the pesticide aspect of the investigation. Pesticide investigations would focus on outfall monitoring to specifically identify which catchments are the most significant pesticide sources.

(c) **WQBEL's.** Within the January 2018 ROWD, the Discharger submitted the results of a Streeter-Phelps model that evaluated the potential change in dissolved oxygen concentrations within Marsh Creek resulting from the proposed increase in the average dry weather discharge rate from the Facility. The model inputs assume that effluent BOD_5 is at a maximum daily concentration of 15 mg/L, the effluent ammonia is at a maximum daily concentration of 2.1 mg/L (as N), and the minimum effluent dissolved oxygen is 5.5 mg/L. Two scenarios were modeled, one for summer conditions when effluent discharge is at the future permitted average dry weather flow rate of 6.4 MGD and one for winter conditions when the discharge is at a peak wet weather flow rate of 12.8 MGD. As shown in Figure F-2, below, increasing the permitted average dry weather discharge rate to 6.4 MGD, and the related peak wet weather flow rate of 12.8 MGD, will not contribute to a lowering of dissolved oxygen within Marsh Creek below the Basin Plan objective of 5.0 mg/L.

Figure F-2. Modeled Downstream Dissolved Oxygen Concentrations within Marsh Creek



(d) Therefore, with the exception of the MDEL for BOD_5, the WQBEL's for dissolved oxygen and BOD_5 from previous Orders 5-00-171, R5-2008-0006-01, and R5-2013-0106-01 have been retained in this Order for current and future flow rates. This Order removes the maximum daily effluent limit for BOD_5 based on 40 CFR Part 122.45 (d), which requires that effluent limitations for POTWs are established as average monthly and average weekly. The removal of the maximum daily effluent limit for BOD_5 will not result in a decrease in the level of treatment or control or a reduction in water quality.

Based on Facility performance during the previous permit term and considering the continuance of the average monthly and average weekly effluent limits, the Central Valley Water Board finds that the removal of the maximum daily effluent limit for BOD_5 does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal of the maximum daily effluent limit for BOD_5 is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy. Mass-based effluent limitations for BOD_5 and ammonia based on the permitted flow of 6.4 MGD have been included, consistent with the findings above that the discharge will not contribute to a lowering of dissolved oxygen within Marsh Creek below the Basin Plan objective of 5.0 mg/L.

(e) **Plant Performance and Attainability.** Based on the analysis of effluent data for dissolved oxygen and BOD_5, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

vi. **Pathogens**

(a) **WQO.** DDW has developed reclamation criteria, CCR, division 4, chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.*" Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life, and constitute a threatened pollution and nuisance under CWC section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL's are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Pathogens are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for 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 Marsh Creek include water contact and non-contact recreation, warm freshwater and wildlife habitat, preservation of rare, threatened, or endangered species, and commercial and sport fishing, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

(c) **WQBEL's.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

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

This Order contains effluent limitations for total coliform organisms and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBEL's for BOD_5 TSS are necessary to protect the beneficial uses of the receiving water. The tertiary treatment standards for 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 TSS than the secondary treatment standards. This Order requires an AMEL and AWEL for TSS of 10 mg/L and 15 mg/L, respectively, which are technically based on the capability of a tertiary treatment 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 from the Facility.

vii. **pH**

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

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

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

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

The Facility is a POTW that treats domestic wastewater. Based on 1,096 samples taken from September 2014 through August 2017, the maximum pH reported was 8.1 and the minimum was 6.9. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBEL's for pH are required in this Order.

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

(d) **Plant Performance and Attainability.** Effluent pH ranged from 6.9 to 8.1. Therefore, the Central Valley Water Board concludes that immediate compliance with the effluent limitations is feasible.

viii. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride The Bay-Delta Plan includes numeric water quality criteria for the protection of agricultural and MUN uses. However, agricultural and MUN uses are not beneficial uses of Marsh Creek. Therefore, the most critical beneficial use affected by salinity within the discharge is warm freshwater habitat, for the protection of aquatic life.

There are no water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, or sulfate. However, water quality criteria for chloride are available for interpretation of the Basin Plan's narrative toxicity objective. The U.S. EPA NAWQC for Chloride recommends acute and chronic criteria for the protection of aquatic life.

In 2009, the state of Iowa, in coordination with U.S. EPA, developed and adopted new chloride criteria for Iowa (Iowa Chloride Criteria). The chloride criteria were developed in accordance with U.S. EPA criteria development guidelines. The new chloride criteria, as shown in Table F-10 below, account for the water hardness- and sulfate-dependent toxicity to chloride in sensitive aquatic organisms.[1] U.S. EPA is in the process of updating its NAWQC for chloride based on Iowa's criteria. Order R5-2013-0106-01 included effluent limitations for chloride based on Iowa's chloride criteria.

Table F-10. Salinity Water Quality Criteria/Objectives

Criteria Type	Criteria Equation	Design Hardness (mg/L as $CaCO_3$)	Design Sulfate (mg/L)	Chloride Criteria (mg/L)
CMC	$287.7x(Hardness)^{0.205797}x(Sulfate)^{-0.07452}$	189	172	577
CCC	$177.87x(Hardness)^{0.205797}x(Sulfate)^{-0.07452}$	189	172	356

[1] *Alternative Water Quality Criteria for Chloride for the Protection of Aquatic Life*, State of Iowa Department of Natural Resources, 2009.

(b) **RPA Results.** The maximum observed chloride concentration in the effluent was 493 mg/L based on 111 samples collected from September 2014 through August 2017. EC and chloride levels have been decreasing due to the Discharger's compliance efforts to reduce chloride (Figures 3 and 4). The maximum observed upstream receiving water chloride concentration was 340 mg/L based on one sample collected from September 2014 through August 2017. Therefore, chloride in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the applicable Iowa Chloride Criteria.

(c) **WQBEL's.** This Order retains the final AMEL and MDEL for chloride of 344 mg/L and 398 mg/L, respectively, from Order R5-2013-0106-01, based on the applicable Iowa Chloride Criteria. This Order also requires the Discharger to continue to implement a Salinity Source Control Program that includes measures to reduce the salinity in its discharge to Marsh Creek.

(d) **Plant Performance and Attainability.** The Discharger has identified two distinct factors that have contributed to the historically elevated effluent chloride concentrations: water distribution system source water and discharges of self-regenerating water softeners (SRWS) into the Facility's collection system. In order to reduce chloride concentrations in the effluent, the Discharger continues to implement an SRWS removal program and limit the fraction of water supply obtained from high chloride-containing source waters. Additionally, the Discharger submitted a 29 December 2017 *Final Compliance with Chloride Effluent Limitations* report, which demonstrates the Facility's ability to comply with the final effluent limitations for chloride established in Order R5-2013-0106-01 and this Order. Therefore, the Central Valley Water Board concludes that immediate compliance with the effluent limitations for chloride is feasible and even with the increase in permitted discharge flow, it will result in less than 10% usage of the available assimilative capacity of Marsh Creek.

Figure F-3. Weekly Monitoring Results for EC at EFF-001

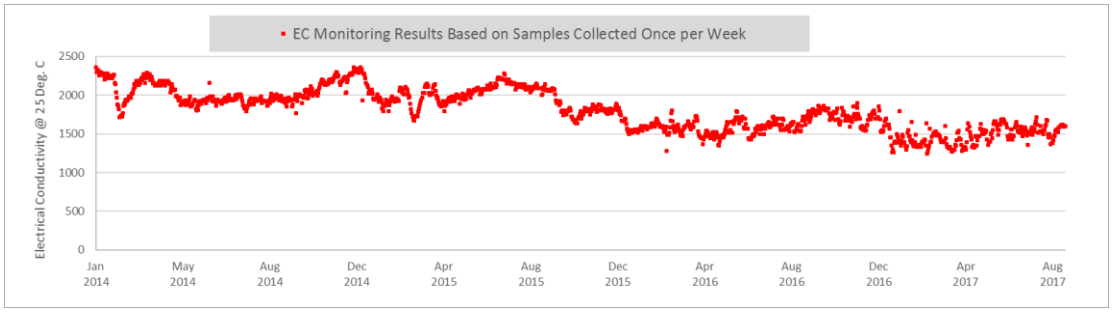
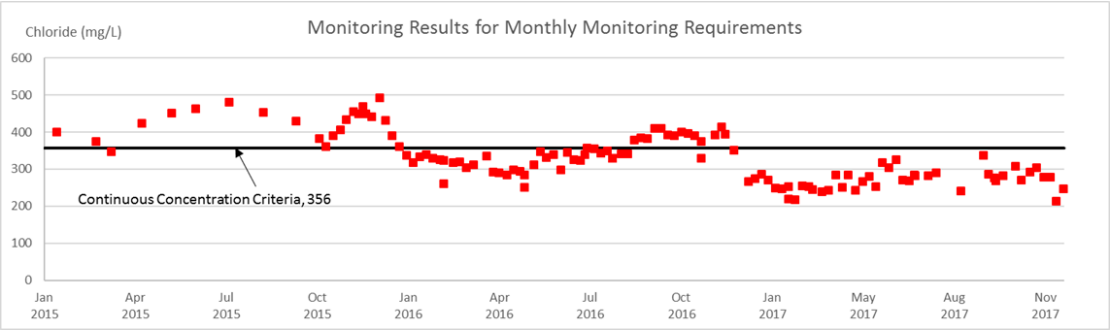


Figure F-4. Monthly Monitoring Results for Chloride at EFF-001



ix. **Temperature**

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

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

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

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

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

(c) **WQBEL's.** Consistent with the Thermal Plan exceptions described in Section III.C.1.c of this Fact Sheet, this Order includes the following effluent limitations:

(1) Effective immediately, the maximum temperature of the discharge shall not exceed the natural receiving water temperature, measured at Monitoring Location RSW-001, by more than:

i. 20º F from 1 February through 30 November; and;

ii. 24 º F from 1 December through 31 January.

If the Central Valley Water Board receives concurrence from the State Water Board regarding the Thermal Plan exceptions , the following effluent limitation applies in lieu of the effluent limitation described in subsection (1) above.

(2) The maximum temperature of the discharge shall not exceed the natural receiving water temperature, measured at Monitoring Location RSW-001, by more than:

i. 20°F from 1 February through 30 November; and,

ii. 23°F from 1 December through 31 January.

(d) **Plant Performance and Attainability.** The discharge has been consistently in compliance with the existing temperature effluent limitations. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBEL's for ammonia, BOD_5, chloride, chlorine residual, dibromochloromethane, chlorpyrifos, diazinon, dichlorobromomethane, dissolved oxygen, methylmercury, pH, total coliform organisms, temperature, and TSS. 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.** 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 the MDEL/AMEL multiplier from Table 2 of the SIP.

For non-priority pollutants with Secondary MCL's that protect public welfare (e.g., taste, odor, and staining), WQBEL's were calculated by setting the LTA equal to the Secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated using the MDEL/AMEL multiplier from Table 2 of the SIP.

d. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The 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 Point 001

Table F-11. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	7.0	12	~~15~~--	--	--
	lbs/day[1]	292	500	~~625~~--	--	--
	lbs/day[2]	374	641	~~801~~--	--	--
pH	standard units	--	--	--	6.5	8.5
Total Suspended Solids	mg/L	10	15	--	--	--
Priority Pollutants						
Dibromochloromethane	µg/L	34	--	83	--	--
Dichlorobromomethane	µg/L	46	--	99	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	0.86	1.7	--	--	--
	lbs/day[1]	36	71	--	--	--
	lbs/day[2]	46	91	--	--	--
Chloride	mg/L	344	--	398	--	--
Chlorine, Total Residual	mg/L	--	0.011[3]	0.019[4]	--	--
Chlorpyrifos	µg/L	[5]	[6]	--	--	--
Diazinon	µg/L	[5]	[6]	--	--	--
Dissolved Oxygen	mg/L	--	--	--	5.5	--
Methylmercury	grams/year	0.14[7]	--	--	--	--
Temperature	°F	--	--	[8]	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[9]	23[10]	--	240

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

[1] Based on an average dry weather flow of 5.0 MGD. Effective immediately and until compliance with Special Provision IV.C.6.b.

[2] Based on an average dry weather flow of 6.4 MGD. Effective upon compliance with Special Provisions VI.C.6.b.

[3] Applied as a 4-day average effluent limitation.

[4] Applied as a 1-hour average effluent limitation.

[5] Average Monthly Effluent Limitation

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

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

[6] Average Weekly Effluent Limitation

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

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

[7] The effluent calendar year annual methylmercury load shall not exceed 0.14 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

[8] The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F from 1 February through 30 November and 24 º F from 1 December through 31 (Section IV.A.1.d.i) or 20°F from 1 February through 30 November and 23°F from 1 December through 31 January (Section IV.A.1.d.ii).

[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 an effluent limitation 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. 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 R5-2013-0106-01, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) The table below includes chronic WET testing performed by the Discharger from September 2014 through August 2017. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

Table F-12. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
9 September 2014	1	1	--	--	1
13 November 2014	1	1	--	--	1
24 February 2015[1]	1	1	1	1.3	1
24 February 2015[2]	--	--	1	1	--
12 May 2015	1	1	--	--	1
9 June 2015	--	--	1	1	--
18 August 2015	1	1	1	1	1
13 October 2015	1	1	1	>1	1
17 November 2015	--	--	1	1	--
1 December 2015	--	--	1	1	--
14 December 2015	--	--	1	2	--
4 January 2016	--	--	1	4	--
5 January 2016	--	--	1	1	--
9 February 2016	1	1	--	--	1
15 March 2016	--	--	1	1.3	--
26 April 2016[3]	--	--	1	1	--

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
26 April 2016[4]	--	--	1	1	--
26 April 2016[5]	--	--	1	1	--
28 June 2016	--	--	1	1	--
12 July 2016	--	--	1	1	--
26 July 2016	--	--	1	1	--
16 August 2016	1	1	--	--	1
11 October 2016	1	1	1	>1	1
7 March 2017	1	1	1	>1	1
2 May 2017	--	--	1	1	--
16 May 2017	--	--	1	1	--
13 June 2017	--	--	1	1	--
27 June 2017	1	1	1	>1	1

1 Lab water control comparison.
2 Receiving water control comparison.
3 Analyses exclude outliers.
4 Analyses include outliers.
5 Split effluent sample tested by separate laboratory on the same date.

i. **RPA.** No dilution has been granted for chronic whole effluent toxicity. Chronic toxicity testing results exceeding 1.3 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between September 2014 and August 2017, the maximum chronic toxicity result was 4 TUc on 4 January 2016 with a percent effect of 27.6 percent. Although whole effluent toxicity exceeded 1 TUc, bioassay testing and evaluation identified that low-level reproductive inhibition to *C. dubia* reproduction periodically observed in the Facility's effluent during accelerated monitoring and the TRE (i.e. test results > 1 TUc) was related to bioassay method resolution and inter-laboratory variability in conducting such tests, not to identifiable factors at the Facility, as confirmed by the Facility performance review and evaluation. Four consecutive bioassay test results showed the absence of effluent toxicity to *C. dubia*. Therefore, the discharge does not have reasonable potential to cause or contribute to an in-stream exceedance of the Basin Plan's narrative toxicity objective.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

The Discharger's Dissolved Oxygen Sag Analyses demonstrated that Marsh Creek dissolved oxygen levels will be maintained above the Basin Plan water quality objective at a BOD_5 concentration of 15 mg/L and an ammonia concentration of 2.14 mg/L (as N). Mass-based effluent limitations for BOD_5 and ammonia have been established in this Order to ensure that mass loads of these oxygen-demanding substances are maintained at levels necessary to comply with the Basin Plan objective for dissolved oxygen within Marsh Creek. Mass-based limits for methylmercury have been established in this Order 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) permitted in section III.F of this Order. Following completion of the Phase II Facility Expansion Project, this Order requires the Discharger to comply with mass-based effluent limitations for BOD_5 and ammonia calculated based on a design flow of 5.0 MGD, effective immediately, and 6.4 MGD design flow depending upon compliance with Special Provision IV.C.6.b. These mass-based effluent limitations are required to ensure that loads of oxygen-demanding substances discharged from the Facility do not cause exceedances of the Basin Plan water quality objective for dissolved oxygen within Marsh Creek.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45(d) requires AMEL's and AWEL's for POTW's unless demonstrated to be impracticable. For dibromochloromethane and dichlorobromomethane, AWEL's has been replaced with MDEL's to be consistent with the SIP. For chloride, dissolved oxygen, pH, 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 bis (2-ethylhexyl) phthalate, copper, BOD_5, and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2013-0106-01. 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.

Marsh Creek is considered an attainment water for bis (2-ethylhexyl) phthalate, copper, BOD_5, and TSS because the receiving water is not listed as impaired on the 303(d) list for these constituents.[1] As discussed in section IV.D.4, below, removal of the effluent limits for bis (2-ethylhexyl) phthalate and copper, removal of the MDEL for TSS and BOD_5, and removal of the mass-based limits for TSS comply with federal and state antidegradation requirements. Thus, the relaxation and removal of these effluent limitations from Order R5-2013-0106-01 meets the exception in CWA section 303(d)(4)(B).

Flow. Previous Order R5 2013-0106-01 included flow as an effluent limitation based on the Facility's design flow. In accordance with Order R5 2013-0106-01, 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. Changing the flow limit to a discharge prohibition is not backsliding 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. However, the Discharger's request of a Phase II Expansion to expand the Facility's capacity from 5.0 MGD to 6.4 MGD has been approved. Thus, a flow increase to 6.4 MGD is expected, during this permit term, upon completion of conditions specified in the Waste Discharge Requirements, Section VI.C.b. The revised discharge prohibition is less stringent than the previous Order but as discussed in section IV.D.4 below the flow increase complies with state and federal antidegradation requirements. Thus, meeting the exception to backsliding 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.b of this Fact Sheet, updated information that was not available at the time Order R5-2013-0106-01 was issued indicates that bis (2-ethylhexyl) phthalate and copper do not exhibit reasonable potential to cause or contribute to an exceedance of applicable water quality objectives in the receiving water. The updated information that supports the relaxation of effluent limitations for bis (2-ethylhexyl) phthalate and copper includes the following:

i. **Bis (2-Ethylhexyl) Phthalate.** Effluent and receiving water monitoring data collected between September 2014 and August 2017 indicates that bis (2-ethylhexyl) phthalate in the discharge does not exhibit reasonable

[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.

potential to cause or contribute to an exceedance of the CTR criteria for the protection of human health.

ii. **Copper.** Effluent and receiving water monitoring data collected between September 2014 and August 2017 indicates that copper in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

4. Antidegradation Policies

As discussed in section II.E of this Fact Sheet, the Discharger is planning to complete a Phase II Facility Expansion Project that would increase the design average dry weather flow capacity of the Facility from 5.0 MGD to 6.4 MGD. In the January 2018 ROWD, the Discharger requested authorization to discharge up to an average dry weather flow of 6.4 MGD and provided an Antidegradation Analysis (Attachment C to the ROWD) to address water quality changes that would result from the increase in the permitted discharge rate. The Antidegradation Analysis provides rationale for the authorization of the increased discharge rate to Marsh Creek and indicates that the increased discharge will be consistent with federal and state antidegradation policies.

The Antidegradation Analysis provides a “simple” antidegradation analysis following the guidance in State Water Board Administrative Procedures Update (APU) 90-004, based on the determination that the increase in permitted discharge rate from 5.0 MGD to 6.4 MGD, average dry weather flow, will produce minor effects on Marsh Creek that will not result in a significant reduction in water quality. Pursuant to APU 90-004, the Antidegradation Analysis evaluated whether changes in water quality resulting from the increased discharge rate are consistent with the maximum benefit of the people of the state, will result in BPTC of the discharge, will not unreasonably affect beneficial uses, and will not cause Marsh Creek water quality to be less than applicable water quality objectives. Findings from the Antidegradation Analysis are summarized below.

a. **Water quality parameters and beneficial uses that will be affected by this Order and the extent of the impact.** Compliance with this Order will not adversely impact beneficial uses of the receiving water or downstream receiving waters. All beneficial uses will be maintained and protected. 40 C.F.R. section 131.12 defines the following tier designations to describe water quality in the receiving water body.

Tier 1 Designation: Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
(40 C.F.R. section 131.12)

Tier 2 Designation: Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State’s continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.
(40 C.F.R. section 131.12)

The tier designation is assigned on a pollutant-by-pollutant basis. The Antidegradation Analysis did not delineate the tier designation for pollutants, but instead conducted an analysis of the potential impact of each constituent and its use of assimilative capacity. Marsh Creek is listed on the 303(d) list as impaired by indicator bacteria, mercury, and toxicity. Therefore, Marsh Creek is considered a Tier 1 receiving water for indicator bacteria, mercury, and toxicity. Marsh Creek is not impaired by the remaining constituents assessed, and therefore, Marsh Creek is considered a Tier 2 receiving water for these pollutants.

In order to evaluate the effects of the increased discharge on the water quality of the receiving water, the Antidegradation Analysis compared the resulting changes in concentrations of constituents present in the Facility's discharge to applicable water quality criteria. A steady-state mass balance equation was used to calculate the downstream water quality under the existing and planned flow scenarios, and the resulting change in assimilative capacity was used to assess the significance of any Marsh Creek water quality impacts. Bioaccumulative constituents were further evaluated to assess changes in mass loadings (i.e., accumulation within the water body) resulting from the increased discharge rate. Dissolved oxygen, pH, temperature, and turbidity were assessed separately from the mass balance and mass loading calculations.

Based on the findings of the Antidegradation Analysis, none of the constituents detected in the Facility's effluent with applicable water quality criteria or with reasonable potential such as dibromochloromethane and dichlorobromomethane, would use more than 10 percent of the available assimilative capacity of Marsh Creek as a result of the increase in permitted discharge flow. As described in section II.E of this Fact Sheet, the Discharger is planning to modify its chlorine disinfection process to reduce concentrations of trihalomethanes in the Facility's effluent. Furthermore, in order to reduce discharges of chloride, the Discharger is implementing an SRWS removal program and limits the fraction of water supply obtained from high chloride-containing source waters.

Bioaccumulative constituents detected in the Facility's effluent include mercury and selenium. Since mercury is a Tier 1 pollutant, and based on the WLA in the applicable TMDL, this Order retains the final effluent limitation for methylmercury and interim limitation for total mercury from Order R5-2013-0106-01 and does not allow for an increase in loading for mercury. Based on the assimilative capacity calculations included in the Discharger's Antidegradation Analysis, the increased discharge rate will not result in the lowering of water quality at or above the 10 percent assimilative capacity significance threshold for selenium. The small increase in loading of selenium resulting from the increase in permitted discharge rate would use a minor amount of the available assimilative capacity in terms of loading and would result in a decrease in receiving water concentration. Thus, the increased loading would not cause toxicity or substantially change bioaccumulation in aquatic life, have adverse population-level effects on organisms residing downstream, nor adversely affect the beneficial uses of Marsh Creek.

This Order requires effluent discharged to Marsh Creek to have a pH between 6.5 and 8.5, which is consistent with the Basin Plan's water quality objective. Because this Order requires effluent discharged to Marsh Creek to have a pH between 6.5 and 8.5, future discharges, regardless of rate or volume, would not cause Marsh Creek pH to fall outside of this range. Thus, the incremental increase in discharge rate would not result in a lowering of water quality nor adversely affect the beneficial uses of Marsh Creek with respect to pH.

The Basin Plan establishes a dissolved oxygen objective of 5.0 mg/L for Delta waterways, which applies to Marsh Creek. Re-aeration of downstream waters due to physical processes and photosynthesis offsets the oxygen demand of effluent as it flows downstream. The Antidegradation Analysis utilized a Streeter-Phelps-based model to evaluate the potential change in dissolved oxygen concentrations within Marsh Creek downstream of the Facility resulting from the increased discharge rate. The model inputs assume that effluent BOD_5 is at a maximum daily concentration of 15 mg/L, the effluent ammonia is at a maximum daily concentration of 2.1 mg/L (as N), and the effluent dissolved oxygen is at a minimum concentration of 5 .5 mg/L. Two scenarios were modeled, one for summer conditions when effluent discharge is at the future permitted average dry weather flow rate of 6.4 MGD and one for winter conditions when the discharge is at a peak wet weather flow rate of 12.8 MGD. Results of the Streeter-Phelps-based models indicate that increasing the permitted discharge rate would not contribute to a lowering of dissolved oxygen within Marsh Creek relative to background conditions or below the Basin Plan objective of 5.0 mg/L. Therefore, an incremental increase in the average dry weather discharge rate permitted by this Order would not result in a lowering of water quality or adversely affect the beneficial uses of Marsh Creek with respect to dissolved oxygen.

The Facility produces tertiary-treated effluent characterized by low turbidity levels, typically less than 1 NTU. Because the Facility's effluent is typically less than 1 NTU, the incremental increase in the permitted discharge rate would not cause increases in Marsh Creek turbidity above that which currently occurs and would not cause an exceedance of the Basin Plan objectives for turbidity. Thus, the incremental increase in discharge would not result in a lowering of water quality or adversely affect the beneficial uses of Marsh Creek with respect to turbidity.

b. **Scientific Rationale for Determining Potential Lowering of Water Quality.** The rationale used in the Antidegradation Analysis is based on 40 C.F.R. section 131.12, U.S. EPA memorandum Regarding Tier 2 Antidegradation Reviews and Significance Thresholds (U.S. EPA 2005), U.S. EPA Region 9 Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12 (U.S. EPA 1987), the State Antidegradation Policy, State Water Board APU 90-004, the Basin Plan, the CTR, and the 303(d) listings.

The scientific rationale used in the antidegradation analysis to determine if this Order allows a lowering of water quality is to determine the reduction of assimilative capacity on a mass-balanced, concentration basis and, for bioaccumulative constituents, calculated on a mass loading basis. This approach is consistent with recent U.S. EPA guidance and addresses a key objective of the antidegradation analysis to "[c]*ompare receiving water quality to the water quality objectives established to protect designated beneficial uses*" (APU 90-004). The State Water Board's APU 90-04 provides guidance for conducting the antidegradation analysis and recommends a simple antidegradation analysis when "…*using its best professional judgement and all available pertinent information, the Regional Board decides that the discharge will not be adverse to the intent and purpose of the State and federal antidegradation policies*." APU 90-04 includes several conditions for allowing simple antidegradation analysis, including where "*A Regional Board determines the proposed action will produce minor effects which will not result in a significant reduction of water quality; e.g., a POTW has a minor increase in the volume of discharge subject to secondary treatment*." U.S. EPA has recommended ten (10) percent as a measure of significance for identifying those substantial lowering of water quality that should receive a full tier 2 antidegradation review. This

Order allows a minor increase in the volume of discharge of 1.4 MGD and, as documented in the Antidegradation Analysis, the amount of assimilative capacity used for the proposed flow increase is well below 10%. Therefore, the Central Valley Water Board concludes that the proposed increase will produce minor effects which will not result in a significant reduction in water quality, and a simple antidegradation analysis may be conducted.

The Central Valley Water Board concurs with this scientific approach.

c. **Justification for Allowing Degradation.** Potential degradation identified in the Antidegradation Analysis due to this Order is justified by the following considerations:

i. The Facility provides state-of-the-art advanced treatment to produce Title 22 quality, tertiary-treated effluent suitable for unrestricted reuse.

ii. The Facility is currently operated to maximize the use of recycled water and minimize discharges to surface waters and will continue to be operated in the same manner in the future.

iii. The Discharger is implementing additional measures to control sources of pollutants, including salinity and trihalomethanes.

iv. The Facility and effluent quality meet or exceed BPTC, in accordance with the state and federal antidegradation policies.

v. Current and future operations of the Facility are expected to achieve compliance with the requirements and meet receiving water quality criteria/objectives, thereby assuring that a pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit of the people of the state of California will be maintained.

The Central Valley Water Board concurs with the findings of the Antidegradation Analysis and finds that the discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the best practicable treatment or control of the discharges from the Facility. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for bis (2-ethylhexyl) phthalate and copper based on updated information, as described in sections IV.C.3 and IV.D.3 of this Fact Sheet. This Order also removes the MDEL for TSS and BOD_5, and the MDEL mass-based effluent limitations for TSS based on 40 C.F.R. part 122.45(d) and (f), and as described further in sections IV.C.3 and IV.D.3 of this Fact Sheet. The removal of WQBEL's for bis (2-ethylhexyl) phthalate, copper, BOD_5 (MDEL), and TSS (MDEL and all mass-based effluent limitations) 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 bis (2-ethylhexyl) phthalate, copper, BOD_5 (MDEL), and TSS (MDEL and mass-based effluent limitations) does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

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, TSS, and pH, 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. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to 30 May 2000, but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

Summary of Final Effluent Limitations
Discharge Point 001
Table F-13. Summary of Final Effluent Limitations

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	7.0	12	~~15~~	--	--	PO
	lbs/day[2]	292	500	~~625~~	--	--	
	lbs/day[3]	374	641	~~801~~	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Dibromochloromethane	µg/L	34	--	83	--	--	CTR
Dichlorobromomethane	µg/L	46	--	99	--	--	CTR
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L	0.86	1.7	--	--	--	NAWQC
	lbs/day[2]	36	71	--	--	--	
	lbs/day[3]	46	91	--	--	--	
Chloride	mg/L	344	--	398	--	--	BP
Chlorine, Total Residual	mg/L	--	0.011[4]	0.019[5]	--	--	NAWQC
Chlorpyrifos	µg/L	[6]	[7]	--	--	--	TMDL
Diazinon	µg/L	[6]	[7]	--	--	--	TMDL

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Dissolved Oxygen	mg/L	--	--	--	5.5	--	BP
Methylmercury	grams/year	0.14[8]	--	--	--	--	TMDL
Temperature	°F	--	--	[9]	--	--	TP
Total Coliform Organisms	MPN/100 mL	--	2.2[10]	23[11]	--	240	Title 22
Acute Toxicity	% survival	--	--	70[12]/90[13]	--	--	BP

1 PO – Based on effluent limitations established in the previous Order.
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.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
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.
TP – Based on the Thermal Plan.
Title 22 – Based on CA Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2 Based on an average dry weather flow of 5.0 MGD. Effective immediately and until compliance with Special Provision IV.C.6.b.

3 Based on an average dry weather flow of 6.4 MGD. Based on a design average daily discharge flow of 6.4 MGD. Effective upon compliance with Special Provisions VI.C.6.b.

4 Applied as a 4-day average effluent limitation.

5 Applied as a 1-hour average effluent limitation.

6 Average Monthly Effluent Limitation

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

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

7 Average Weekly Effluent Limitation

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

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

8 The effluent calendar year annual methylmercury load shall not exceed 0.14 grams, in accordance with the Delta Mercury Control Program, effective 31 December 2030.

9 The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F from 1 February through 30 November and 24 º F from 1 December through 31 January (Section IV.A.1.d.i) or 20°F from 1 February through 30 November and 23°F from 1 December through 31 January (Section IV.A.1.d.ii).

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.

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 methylmercury. The Compliance Schedule Policy requires that interim effluent limitations be based on current Facility performance or existing permit limitations, whichever is more stringent. Consistent with the Delta Mercury Control Program, this Order includes interim effluent limitations for total mercury based on Facility performance.

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

   A compliance schedule is necessary because the Discharger must implement actions, 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 methylmercury during the term of Order R5-2013-0106-01. The Discharger has developed and continues to implement a pollution prevention plan for mercury, which was submitted to the Central Valley Water Board on 21 June 2012, and provided annual progress reports during the term of Order R5-2013-0106-01.

   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 and final compliance date may be modified at the completion of Phase 1.

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

2. **Interim Limits for 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 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 R5-2013-0106-01, which is consistent with the intent of the TMDL to not

penalize dischargers for early actions to reduce mercury. Total mercury samples collected since the operation of tertiary filtration from August 2008 through December 2011 were used in the determination of the performance-based interim effluent limit in Order R5-2013-0106-01. 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.

a. **Temperature.** The Thermal Plan is applicable to the discharge from the Facility. For the purposes of the Thermal Plan, the discharge is considered to be an Existing Discharge of Elevated Temperature Waste to an Estuary, as defined in the Thermal Plan. See Section III.C.1.c for a discussion of the temperature receiving water limitations.

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 uses. 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 MUN. 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 section 122.42.

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

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** The Delta Mercury Control Program was designed to proceed in two phases. Phase 1 is currently underway. Phase 2 begins after the Phase 1 Delta Mercury Control Program Review and Board approval. As a result of the Phase 1 Delta Mercury Control Program Review, changes may be needed to final allocations, implementation and monitoring requirements, and compliance schedules. Therefore, this Order may be reopened to address changes to the Delta Mercury Control Program.

b. **Whole Effluent Toxicity (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, 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

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

total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

d. **Drinking Water Policy.** On 26 July 2013, the Central Valley Water Board adopted Resolution R5-2013-0098, amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

2. Special Studies and Additional Monitoring Requirements

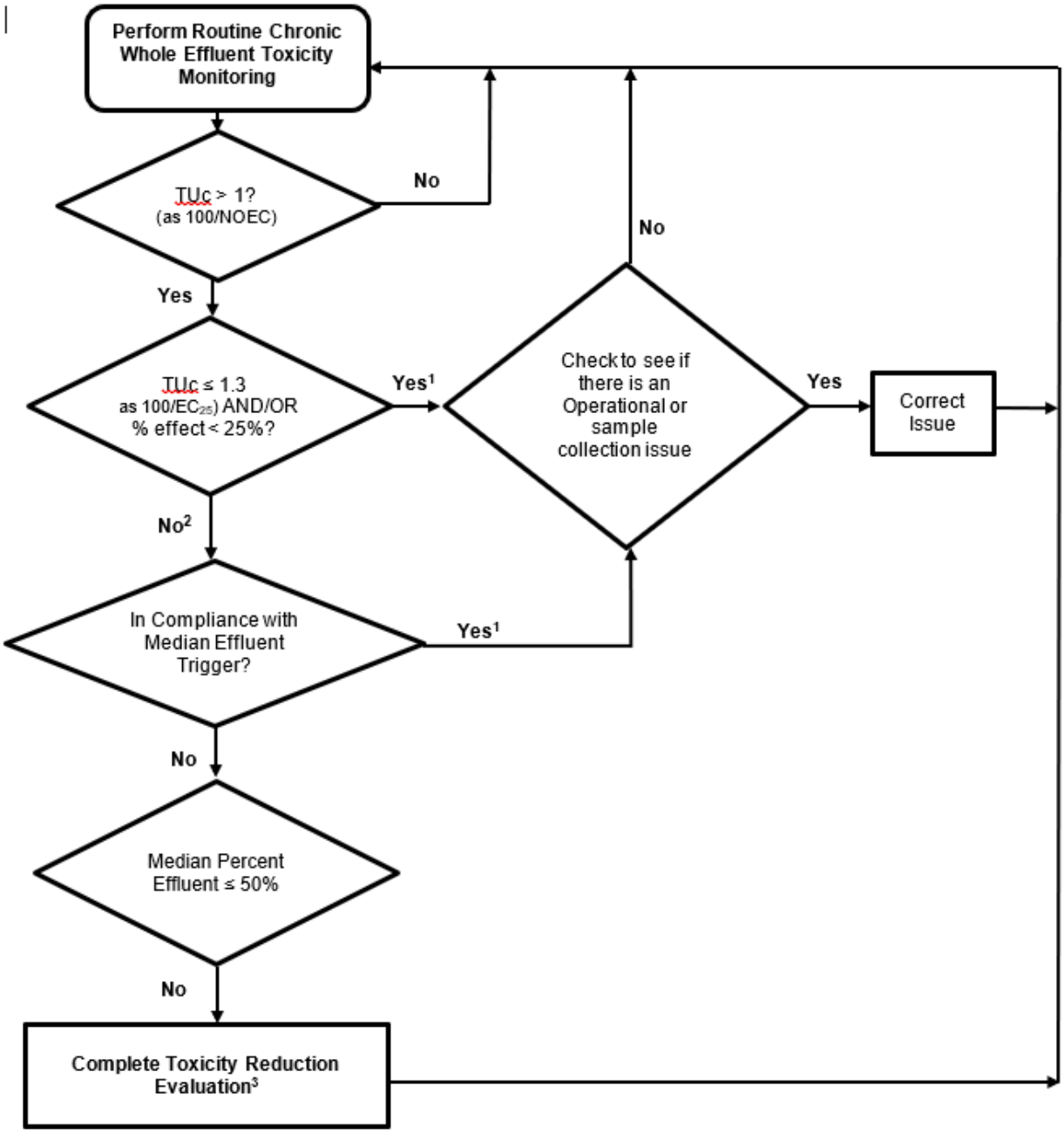
a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from September 2014 through August 2017, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The MRP of this Order requires quarterly chronic WET monitoring. If the discharge exceeds the numeric toxicity 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 Monitoring Flow Chart



1. The Discharger may participate in an approved TES if the discharge has exceeded the numeric toxicity monitoring trigger twice or more in the past 12 month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3 sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.
3. The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

3. Best Management Practices and Pollution Prevention

a. **Water Code Section 13263.3(d)(3) Pollution Prevention Plans.** A pollution prevention plan for mercury is required in this Order per Water Code section 13263.3(d)(1)(C). Order R5-2013-0106-01 required the Discharger to

implement a pollution prevention plan for mercury and the requirement is retained in this Order. The pollution prevention plan required in sections VI.C.3.a and VI.C.7.a 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 plan 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 also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

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

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

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

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

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

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

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

b. **Salinity Evaluation and Minimization Plan.** The Discharger shall evaluate the effectiveness of the salinity and minimization plan and provide a summary with the Report of Waste Discharge, due 1 year prior to the permit expiration date. (Attachment E, section X.D.3).

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.

b. **Emergency Storage Basin Operating Requirements.** The operation and maintenance of the emergency storage basin are required to be conducted in a manner that prevents flooding and reduces nuisances.

c. **Self-Regenerating Water Softeners.** On 11 October 2009, the State enacted Water Code Section 13148 which provides additional authority (relative to previous State law) to local wastewater service agencies to control SRWS-caused salinity inputs to their systems to protect the quality of waters of the State. The law allows the local agency to adopt an ordinance or resolution for the planned SRWS controls. Before a local agency takes action to control salinity input from SRWS, a Regional Water Board must make a finding that the control of SRWS-caused salinity inputs will contribute to the achievement of water quality objectives (Cal. Wat. Code 13148[e]). The Regional Water Board's finding can occur through any of five identified water quality actions, of which the issuance of these waste discharge requirements is one method. Accordingly, the Central Valley Water Board finds that the control of residential use of SRWS brine discharges to the Discharger's collection system will contribute to the achievement of the water quality objectives. Thus, the discharger adopted an Ordinance in 2013 to prohibit the installation of new self-regenerating water softeners discharging to the collection system. The implementation of this ordinance has resulted in the removal of approximately 3,113 units from the period of March 2015 through October 2018 when the softener removal/replacement incentive program began. The Discharger will continue to implement the ordinance and other measurements such as change to lower salinity water supplies as part of their pollution prevention plan for chloride.

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

a. **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 onsite to prevent nuisance, protect public health, and protect groundwater quality.

b. **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.

6. Other Special Provisions

a. Consistent with Order R5-2013-0106-01, this Order requires the discharge to be oxidized, filtered, and adequately disinfection pursuant to DDW reclamation criteria, Title 22, or equivalent, specified in the CCR, Title 22, division 4, chapter 3, article 1, §60301.230. After 31 May 2022 the Discharger will have completed the necessary construction upgrades to expand the treatment capacity of the Facility from 5.0 MGD to 6.4 MGD and will start using a "Low Contact Time (CT)" free chlorine approach. Based on the previous CCR section requirements the Discharger's current filtered wastewater needs to be disinfected by "a chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow."

DDW approved the Discharger's Free Chlorine Disinfection procedure in a letter dated 2 November 2017. Thus, upon initiation of the Free Chlorine Disinfection process the effluent discharged from the Facility will have to meet the requirements specified by DDW in its 2 November 2017 letter. The Discharger is updating its Title 22 Engineering Report to include these requirements.

The approved Free Chlorine Disinfection procedure was based on the design shown in the report titled "*Demonstration of Tertiary Free Chlorine Disinfection at the City of Brentwood Waste Water Treatment Plant*," dated August 2017. Any future proposed changes made to the design or operation of this treatment technology must be submitted in advance to DDW for review and to determine whether the modifications will require additional testing to determine whether the modifications will require additional testing to ensure Title 22 equivalency.

b. **Facility Expansion (6.4 MGD).** The Discharger has requested a total expansion of allowable flows to be discharged up to 6.4 MGD year-round to Marsh Creek following completion of the Phase II Facility Expansion Project. The Discharger must comply with each provision in section VI.C.6.b of this Order before the permitted effluent flow may be increased.

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.

The Delta Mercury Control Program is composed of two phases. Phase 1 is currently underway and continues through the Phase 1 Delta Mercury Control Program Review. Phase 1 emphasizes studies and pilot projects to develop and evaluate management practices to control methylmercury. Phase 1 includes provisions for: implementing pollution minimization programs and interim mass limits for inorganic (total) mercury point sources in the Delta and Yolo Bypass; controlling sediment-bound mercury in the Delta and Yolo Bypass that may become methylated in agricultural lands, wetlands, and open-water habitats; and reducing total mercury loading to the San Francisco Bay, as required by the *Water Quality Control Plan for the San Francisco Bay*. As part of Phase 1, the CVCWA Coordinated Methylmercury Control Study Work Plan was approved by the Executive Officer on 7 November 2013. The final CVCWA Methylmercury Control Study was submitted to the Central Valley Water Board on 19 October 2018 and revised on 26 October 2018.

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

At the end of Phase 1, the Central Valley Water Board will conduct a Phase 1 Delta Mercury Control Program Review that considers: modification of methylmercury goals, objectives, allocations and/or the Final Compliance Date; implementation of

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

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

Task	**Date Due**
Phase 1	
i. Submit CVCWA Coordinated Methylmercury Control Study Work Plan	**Complete (7 November 2013)**
ii. Submit Pollution Prevention Plan (PPP)[1] for Mercury (per Section VI.C.3.a)	**Complete (1 August 2014)**
iii. Implement CVCWA Coordinated Methylmercury Control Study Work Plan	**Complete**
iv. Annual Progress Reports[2]	**See Technical Reports Table**
v. Submit CVCWA Coordinated Methylmercury Control Study Progress Report	**Complete (20 October 2015)**
vi. Submit Final CVCWA Coordinated Methylmercury Control Study	**Complete (19 October 2018 and 26 October 2018)**
Phase 2	
vii. Implement methylmercury control programs	**TBD[3]**
viii. Full Compliance	**See Technical Reports Table**

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

2 Beginning **1 February 2020** and annually thereafter until the Facility achieves compliance with the final effluent limitations for methylmercury, the Discharger shall submit annual progress reports on the previously-submitted pollution prevention plan for mercury. This annual report may be combined with the Annual Operations Report and submitted as one report. The progress reports shall discuss the effectiveness of the pollution prevention plan in the reduction of mercury in the discharge, include a summary of mercury and methylmercury monitoring results, and discuss updates to the pollution prevention plan.

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.

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 (weekly), TSS (weekly), and electrical conductivity (weekly) have been retained from Order R5-2013-0106-01.

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. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Effluent monitoring frequencies and sample types for flow (continuous), BOD_5 (twice per week), pH (daily), TSS (twice per week), dibromochloromethane (monthly), mercury (monthly), ammonia (weekly), chloride (monthly), chlorpyrifos (annually), diazinon (annually), dissolved oxygen (daily), electrical conductivity (weekly), hardness (monthly), methylmercury (monthly), nitrate (quarterly), nitrite (quarterly), sulfate (monthly), temperature (daily), and total coliform organisms (five times per week) have been retained from Order R5-2013-0106-01 to determine compliance with effluent limitations and discharge prohibitions for these parameters.

3. Continuous effluent monitoring for sodium bisulfite ($NaHSO_3$) has been added to evaluate compliance with the total chlorine residual effluent limitations. Continuous monitoring data for total residual chlorine is required for compliance determination when either one of the following conditions are met: a) a positive detection of dechlorination

agent residual; or b) a chlorine residual detection at or below the prescribed limit when the dechlorination agent residual is non-detect or zero.

4. Monitoring data collected over the previous permit term for bis (2-ethylhexyl) phthalate and copper did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2013-0106-01.

5. Order R5-2013-0106-01 included monthly effluent monitoring requirements for oil and grease. Monitoring data collected over the term of Order R5-2013-0106-01 for oil and grease did not demonstrate reasonable potential to exceed water quality objectives/criteria and there are no significant industrial users within the service area. Additionally, the Facility provides Title 22, or equivalent, tertiary filtration and maintains a Fats, Oils, and Grease (FOG) program to control oil and grease in the discharge. Therefore, effluent monitoring requirements for oil and grease have not been retained from Order R1-2013-0106-01.

6. Monitoring data collected during the term of Order R5-2013-0106-01 indicates that dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the applicable CTR human health criterion. Therefore, this Order establishes monthly effluent monitoring requirements for dichlorobromomethane.

7. This Order requires that pollutants be analyzed using the analytical methods described in 40 C.F.R. part 136 or a U.S. EPA approved Alternate Testing Procedure. However, where no methods are specified for a standard, an alternate method can be approved by the Central Valley Water Board. This Order requires either EPA 8141A or EPA 625M methods be utilized for chlorpyrifos and diazinon. These alternate analytical methods are necessary to determine compliance with the effluent limits for these constituents. Basin Plan water quality objectives for chlorpyrifos and diazinon are 0.015 µg/L and 0.10 µg/L, respectively, as a 4-day average (see Attachment F, section IV.C.3 for more information). Therefore, chlorpyrifos and diazinon must be analyzed using analytical methods that have a lower MDL than the Basin Plan water quality objectives.

8. 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 beginning the second quarter of 2020. This monitoring frequency has been retained from Order R5-2013-0106-01. See section IX.D of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

9. Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.*" DDW 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.** Consistent with Order R5-2013-0106-01, quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity. The monitoring frequency has been reduced from monthly to quarterly due to consistent compliance by the Facility.

2. **Chronic Toxicity.** Consistent with Order R5-2013-0106-01, quarterly chronic WET testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

   The most sensitive species to be used for chronic toxicity testing was determined in accordance with the process outlined in the MRP, section V.E.2. Based on the Discharger's last 3 years of chronic toxicity data, the species that exhibited the maximum chronic toxicity result was the water flea (*Ceriodaphnia dubia*), with a result of 4 TUc and a percent effect of 27.6 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 participating 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 stream.

c. Receiving water monitoring frequencies and sample types at Monitoring Locations RSW-001 and RSW-002 for pH (weekly), dissolved oxygen (weekly), electrical conductivity (weekly), hardness (quarterly), temperature (weekly), and turbidity (weekly) have been retained from Order R5-2013-0106-01 to determine compliance with applicable receiving water limitations and characterize the receiving water for these parameters.

d. 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 shall include, at minimum, one representative ambient background characterization monitoring event for priority pollutant constituents during the term of the permit, in order to collect data to conduct an RPA for the next permit renewal.

2. Groundwater

Order R5-2013-0106-01 included groundwater monitoring requirements and a compliance schedule for achieving full compliance with groundwater limitations. However, the Discharger submitted a comprehensive work plan and a final well abandonment report. In addition, Percolation Pond 008 has been decommissioned and Emergency Storage Pond 006 is now lined. Thus, there is no longer a threat to groundwater quality so the ground water monitoring requirements have been removed.

E. Other Monitoring Requirements

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

1. Biosolids Monitoring

Biosolids monitoring is required pursuant to the pretreatment requirements contained in 40 C.F.R. part 403 and implemented in section VI.C.5.a of this Order. Biosolids monitoring is required per U.S. EPA guidance to evaluate the effectiveness of the pretreatment program.

2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2013-0106-01, this Order requires annual water supply monitoring for electrical conductivity, standard minerals, and total dissolved solids at Monitoring Location SPL-001.

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 R5-2013-0106-01 required effluent monitoring for turbidity at Monitoring Location EFF-001. This Order moves the point of compliance from Monitoring Location EFF-001 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. Land Discharge Monitoring - Not Applicable.

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 ensures 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 Brentwood 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 Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through posting of a

Notice of Public Hearing at the Facility, local City Hall, local post office, and the local newspaper (Brentwood Press). 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/

1. 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 **4 March 2019.**

2. 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:	**4/5 April 2019**
Time:	8:30 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 1685 "E" Street Fresno, CA 93706-2007

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.

3. 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

4. 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.

5. 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.

6. Additional Information

Requests for additional information or questions regarding this order should be directed to Dania Jimmerson at (916) 464-4742.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia Nitrogen, Total (as N)	mg/L	1.5	0.21	1.35	2.14[1]	1.35[2]	--	--	--	--	Yes
Bis (2-Ethylhexyl) Phthalate	µg/L	3.0	<0.50	5.9	--	--	--	5.9	--	--	No
Chloride	mg/L	493	340	356	577[3]	356[3]	--	--	--	--	Yes
Dibromochloromethane	µg/L	59	28	34	--	--	--	34	--	--	Yes
Copper, Total Recoverable	µg/L	8.0	4.2	10.4	24	15	--	--	10.4	--	No
Cyanide, Total (as CN)	µg/L	9.4	6.3	5.2	22	5.2	--	220,000	10	--	No[4]
Dichlorobromomethane	µg/L	65	33	46	--	--	--	46	--	--	Yes
Mercury, Total Recoverable	µg/L	0.0014	0.0016	0.051	--	--	--	0.051	--	--	No
Methylmercury	µg/L	$<2.0 \times 10^{-5}$	4.0×10^{-5}	--	--	--	--	--	--	--	Yes[4]

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available
ND = Non-detect

Footnotes:
(1) 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) Represents Iowa Chloride Criteria.
(4) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.

ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations

Parameter	Units	Criteria	Mean Background Concentration	CV Eff[1]	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Dibromochloromethane	µg/L	34	28	0.92	--	2.43	1.86	34	83	--
Dichlorobromomethane	µg/L	46	33	0.70	--	2.15	1.65	46	99	--

1 Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

Aquatic Life WQBEL's Calculations

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)	mg/L	2.14	1.35	0.21[5]	0.98	--	--	0.21	0.45	0.67	0.91	1.92	3.84	--	0.86	1.7	--
Chloride	mg/L	577	356	340	--	--	--	--	--	--	--	--	--	--	344[7]	--	398[6]
Chlorpyrifos	µg/L	0.025	0.015	<0.0050	0.60	--	--	0.32	0.0080	0.53	0.0079	1.55	2.68	--	0.012	0.021	
Diazinon	µg/L	0.16	0.10	<0.0070	0.60	--	--	0.32	0.051	0.53	0.0053	1.55	2.68	--	0.079	0.14	

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 Maximum background concentration. 6 Effluent limitations for chloride have been retained from Order R5-2013-0106-01 and are based on the Iowa Chloride Criteria.