

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

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

**ORDER R5-2018-0036
NPDES NO. CA0079391**

**WASTE DISCHARGE REQUIREMENTS FOR THE
CITY OF JACKSON
WASTEWATER TREATMENT PLANT
AMADOR COUNTY**

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

Table 1. Discharger Information

Discharger	City of Jackson
Name of Facility	Wastewater Treatment Plant
Facility Address	39 North Highway 49-88
	Jackson, CA 95642
	Amador County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Tertiary Treated Effluent	38° 20' 40.22"	120° 47' 04.44"	Jackson Creek

Table 3. Administrative Information

This Order was adopted on:	31 May 2018
This Order shall become effective on:	1 August 2018
This Order shall expire on:	31 July 2023
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	31 July 2022
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:	Minor

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 **31 May 2018**.

Original signed by

PATRICK PULUPA, Executive Officer

CONTENTS

I. Facility Information 3
II. Findings 3
III. Discharge Prohibitions 4
IV. Effluent Limitations and Discharge Specifications 5
 A. Effluent Limitations – Discharge Point 001 5
 1. Final Effluent Limitations – Discharge Point 001 5
 2. Interim Effluent Limitations – Not Applicable 6
 B. Land Discharge Specifications – Not Applicable 6
 C. Recycling Specifications – Not Applicable 6
V. Receiving Water Limitations 6
 A. Surface Water Limitations 6
 B. Groundwater Limitations – Not Applicable 8
VI. Provisions 8
 A. Standard Provisions 8
 B. Monitoring and Reporting Program (MRP) Requirements 11
 C. Special Provisions 11
 1. Reopener Provisions 11
 2. Special Studies, Technical Reports and Additional Monitoring Requirements 13
 3. Best Management Practices and Pollution Prevention 14
 4. Construction, Operation and Maintenance Specifications 14
 5. Special Provisions for Publicly-Owned Treatment Works (POTW's) 15
 6. Other Special Provisions 16
 7. Compliance Schedules – Not Applicable 16
VII. Compliance Determination 16

TABLES

Table 1. Discharger Information 1
Table 2. Discharge Location 1
Table 3. Administrative Information 1
Table 4. Effluent Limitations 5

ATTACHMENTS

Attachment A – Definitions A-1
Attachment B – Map B-1
Attachment C – Flow Schematic C-1
Attachment D – Standard Provisions D-1
Attachment E – Monitoring and Reporting Program E-1
Attachment F – Fact Sheet F-1
Attachment G – Summary Of Reasonable Potential Analysis G-1
Attachment H – Calculation of WQBEL'S H-1

I. FACILITY INFORMATION

Information describing the City of Jackson, 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.B, IV.C, and V.B are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. Monitoring and Reporting.** 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and state requirements. The MRP is provided in Attachment E.

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

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

- E. Notification of Interested Persons.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.
- F. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that Order R5-2013-0146-01 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.** The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
- E.** Discharge of waste classified as "hazardous," as defined in the California Code of Regulations (CCR), Title 22, section 66261.1 et seq., is prohibited.
- F.** The Discharger is prohibited from discharging wastewater into Jackson Creek in amounts that cause the downstream Amador Lake water to exceed greater than 5 percent volume of wastewater in Amador Lake (one part wastewater in 20 parts of lake water, or 20:1 dilution).
- G. 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 0.43 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 0.71 MGD are prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	--	--	--
Priority Pollutants						
Chlorodibromomethane	µg/L	0.41	--	0.82	--	--
Cyanide, Total (as CN)	µg/L	4.2	--	8.7	--	--
Dichlorobromomethane	µg/L	0.56	--	0.99	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.9	4.3	--	--	--
	lbs/day ¹	6.8	15	--	--	--
	lbs/day ²	11	25	--	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	21	--	--	--
Total Trihalomethanes ³	µg/L	80	120	--	--	--

¹ Based on a design average dry weather flow of 0.43 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.

² Based on a design average dry weather flow of 0.71 MGD. Effective upon compliance with Special Provision VI.C.6.b.

³ The sum of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.

- b. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 85 percent.
- c. **Acute Whole Effluent Toxicity (WET).** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. 70%, minimum for any one bioassay; and
 - ii. 90%, median for any three consecutive bioassays.
- d. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:
 - i. 0.011 mg/L, as a 4-day average; and
 - ii. 0.019 mg/L, as a 1-hour average.
- e. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following, with compliance measured at Monitoring Location EFF-001 as described in the MRP, Attachment E. Once the UV disinfection system becomes operational,

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

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

- f. **Mercury, Total Recoverable.** For a calendar year, the total annual mass discharge of total mercury shall not exceed 0.019 lbs.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Jackson 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, which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
- 3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
- 4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
- 5. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
- 6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
- 7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
- 8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
- 9. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

- c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by U.S. EPA or the Executive Officer;
 - d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board (State Water Board) Resolution 68-16 and 40 C.F.R. section 131.12);
 - e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
 - f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15 (Title 22); nor
 - g. Thiobencarb to be present in excess of 1.0 µg/L.
10. **Radioactivity:**
- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
 - b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the CCR.
11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
15. **Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
17. **Turbidity:**
- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
 - b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 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 – Not Applicable

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 CCR, Title 23, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. Violation of any term or condition contained in this Order;
 - ii. Obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 - iv. A material change in the character, location, or volume of discharge.

The causes for modification include:

- i. *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- ii. *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- iii. *Change in sludge use or disposal practice.* Under 40 C.F.R. section 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
 - ii. Controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.
- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the state or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by U.S. EPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this Order shall be maintained at the 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 by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with CCR, Title 16, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

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

- o. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from the Facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- p. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such non-compliance, and shall confirm this notification in writing within 5 days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of non-compliance, and shall describe the measures being taken to remedy the current non-compliance and prevent recurrence including, where applicable, a schedule of implementation. Other non-compliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity (WET), monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

- c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Whole Effluent Toxicity (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.
- e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents, other than copper. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- f. **Disinfection Byproducts.** If chlorodibromomethane, cyanide, dichlorobromomethane, and/or total trihalomethanes are no longer detected in the effluent as a result of the Facility upgrade from chlorine disinfection to UV disinfection, this Order may be reopened to modify the effluent limitations and monitoring requirements for the applicable parameters.
- 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. **Ultraviolet Light (UV) Disinfection Operating Specifications.** The UV operating specifications in this Order are based on the UV guidelines developed by the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) titled, "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" (NWRI Guidelines). If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications.
- i. **20:1 Dilution in Amador Lake (Prohibition III.F).** This prohibition is based on the State Water Board Division of Drinking Water's (DDW; formerly the Department of Public Health) recommendation that discharges from wastewater treatment plants to municipal water supplies maintain a minimum of 20:1 dilution to ensure the protection of the downstream domestic beneficial use of Jackson Creek and public health. If DDW determines and provides written notification that 20:1 dilution for the disinfected tertiary treated effluent discharge is no longer necessary, this Order may be reopened to remove Prohibition III.F.

- j. **Facility Re-Rating Study.** The Discharger is constructing Facility upgrades to improve nitrogen removal, which are scheduled to be completed in 2019. The Discharger is also constructing inflow and infiltration improvements to reduce peak wet weather flows into the Facility. These improvements are expected to result in an increase to the average dry weather design flow capacity of the Facility. If the Discharger conducts a Facility re-rating study that demonstrates the average dry weather design flow capacity has increased, this Order may be reopened to modify Prohibition III.G, as appropriate.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Toxicity Reduction Evaluation (TRE) Requirements.** This provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Special Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TRE's are designed to identify the causative agents and sources of WET, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. Alternatively, under certain conditions, as described below, the Discharger may participate in an approved TES in lieu of conducting a site-specific TRE.
 - i. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger is 1 TUc (where $TUc = 100/NOEC$). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection ii, below.
 - ii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic WET result during routine monitoring exceeds the chronic toxicity monitoring trigger, the Discharger shall proceed as follows:
 - (a) **Initial Toxicity Check.** If the result is less than or equal to 1.3 TUc (as $100/EC_{25}$) AND/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 subsection (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

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

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

- (d) **Toxicity Evaluation Study (TES).** If the percent effect is ≤ 50 percent at 100 percent effluent, as the median of up to three consecutive chronic toxicity tests within a 6-week period, the Discharger may participate in an approved TES in lieu of a site-specific TRE. The TES may be conducted individually or as part of a coordinated group effort with other similar dischargers. If the Discharger chooses not to participate in an approved TES, a site-specific TRE shall be initiated in accordance with subsection (e)(1), below. Nevertheless, the Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a site-specific TRE within the past 12 months and has been unsuccessful in identifying the toxicant.
- (e) **Toxicity Reduction Evaluation (TRE).** If the percent effect is > 50 percent at 100 percent effluent, as the median of three consecutive chronic toxicity tests within a 6-week period, the Discharger shall initiate a site-specific TRE as follows:
- (1) **Within 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. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement a salinity evaluation and minimization plan to identify and address sources of salinity discharged from the Facility.

If the effluent annual average calendar year electrical conductivity concentration exceeds 700 $\mu\text{mhos/cm}$ during the term of this Order, the Discharger shall evaluate the effectiveness of the salinity evaluation and minimization plan and provide a summary with the ROWD, due 1 year prior to the expiration date of this Order.

4. Construction, Operation and Maintenance Specifications

- a. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, the turbidity of the filter effluent, measured at Monitoring Location EFF-001, shall not exceed:
- i. 2 NTU as a daily average;
 - ii. 5 NTU more than 5 percent of the time within a 24-hour period; and
 - iii. 10 NTU, at any time.
- b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** The Discharger shall notify the Central Valley Water Board at least 30 days prior to start-up of the UV disinfection system. Once in operation, the UV disinfection system must be operated in accordance with an operations and maintenance program that

assures adequate disinfection and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:

- i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm^2).
- ii. **UV Transmittance.** The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at Monitoring Location UVS-001 shall not fall below 55 percent.
- iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.
- iv. The lamp sleeves must be cleaned periodically as necessary to meet the UV dose requirements.
- v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

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

- a. **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 CCR, Title 27, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, and 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 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.

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

b. **Collection System.** 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.

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. **Permitted Average Dry Weather Flow Increase (0.71 MGD).** The Discharger has requested an increase in the allowable flows to be discharged to Jackson Creek. The permitted average dry weather discharge flow may increase to 0.71 MGD upon compliance with the following conditions:
- i. **Facility Improvements.** The Discharger shall have completed construction and startup of the Facility improvements needed to provide a treatment capacity of 0.71 MGD. The Discharger shall provide certification of completion by the design engineer.
- ii. **Effluent and Receiving Water Limitation Compliance.** The discharge shall consistently comply with final effluent limitations in section IV.A.1 and receiving water limitations in section V.A. The Discharger shall provide evidence, certified by a licensed professional engineer, that the Facility is operating properly.
- iii. **Request for Flow Increase.** The Discharger shall submit a written 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 – Not Applicable

VII. COMPLIANCE DETERMINATION

- A. **BOD₅ and TSS Effluent Limitations (Sections IV.A.1.a and IV.A.1.b).** Compliance with the final effluent limitations for BOD₅ 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 BOD₅ and TSS in effluent samples

collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

- B. Total Mercury Mass Loading Effluent Limitation (Section IV.A.1.f).** The procedures for calculating mass loadings are as follows:
1. The total pollutant mass load for each individual quarter shall be determined using an average of all concentration data collected that quarter and the corresponding total flow for that quarter. All effluent monitoring data collected under the MRP and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar quarters.
 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.G).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow 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.e).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a MPN of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.
- E. Total Residual Chlorine Effluent Limitations (Section IV.A.1.d).** Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.
- Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with section IV 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:

$$\text{Mass (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34 \text{ (conversion factor)}$$

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

- 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 or with an average weekly effluent limitation (AWEL) and more than one sample result is available in a week, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
 4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a PMP (as described in section 2.4.5.1), the Discharger shall not be deemed out of compliance.
- H. 20:1 Dilution of Wastewater in Amador Lake (Section III.F).** Compliance with Prohibition III.F will be determined in December of each year from the harmonic mean of annual inflows into Amador Lake, excluding effluent discharged to Jackson Creek, and using the current year's average dry weather flow discharged to Jackson Creek to estimate the percentage of effluent in Amador Lake. The annual inflows into Amador Lake, excluding effluent discharged to Jackson Creek, will be comprised of upstream Jackson Creek flow, estimated runoff into Amador Lake, rainfall into Amador Lake, and Lake Pardee water transferred into Amador Lake. The harmonic mean, which is the lowest estimate of the central tendency of a data set, has been chosen to conservatively estimate dilution in Amador Lake.
- I. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c).** The Facility provides a high level of treatment, including tertiary filtration and nitrification, which results in minimal

dissolved oxygen impacts in the receiving water. Receiving water monitoring for dissolved oxygen is required once per week in the MRP (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this Order. Receiving water monitoring data, measured at Monitoring Locations RSW-001 and RSW-002, will be used to determine compliance with part “c” of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in Jackson Creek to be reduced below 7.0 mg/L at any time. However, should more frequent dissolved oxygen and temperature receiving water monitoring be conducted, Central Valley Water Board staff may evaluate compliance with parts “a” and “b”.

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

A.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

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

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

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

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

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

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

Effect Concentration (EC)

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

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

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

Endpoint

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

Estimated Chemical Concentration

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

Estuaries

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

Inhibition Concentration

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

Inland Surface Waters

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

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Maximum Daily Effluent Limitation (MDEL)

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

Median

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

Method Detection Limit (MDL)

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

Minimum Level (ML)

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

Mixing Zone

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

No-Observed-Effect-Concentration (NOEC)

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

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Ocean Waters

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

Percent Effect

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

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

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

Pollution Prevention

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

Satellite Collection System

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

Source of Drinking Water

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

Standard Deviation (σ)

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

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

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

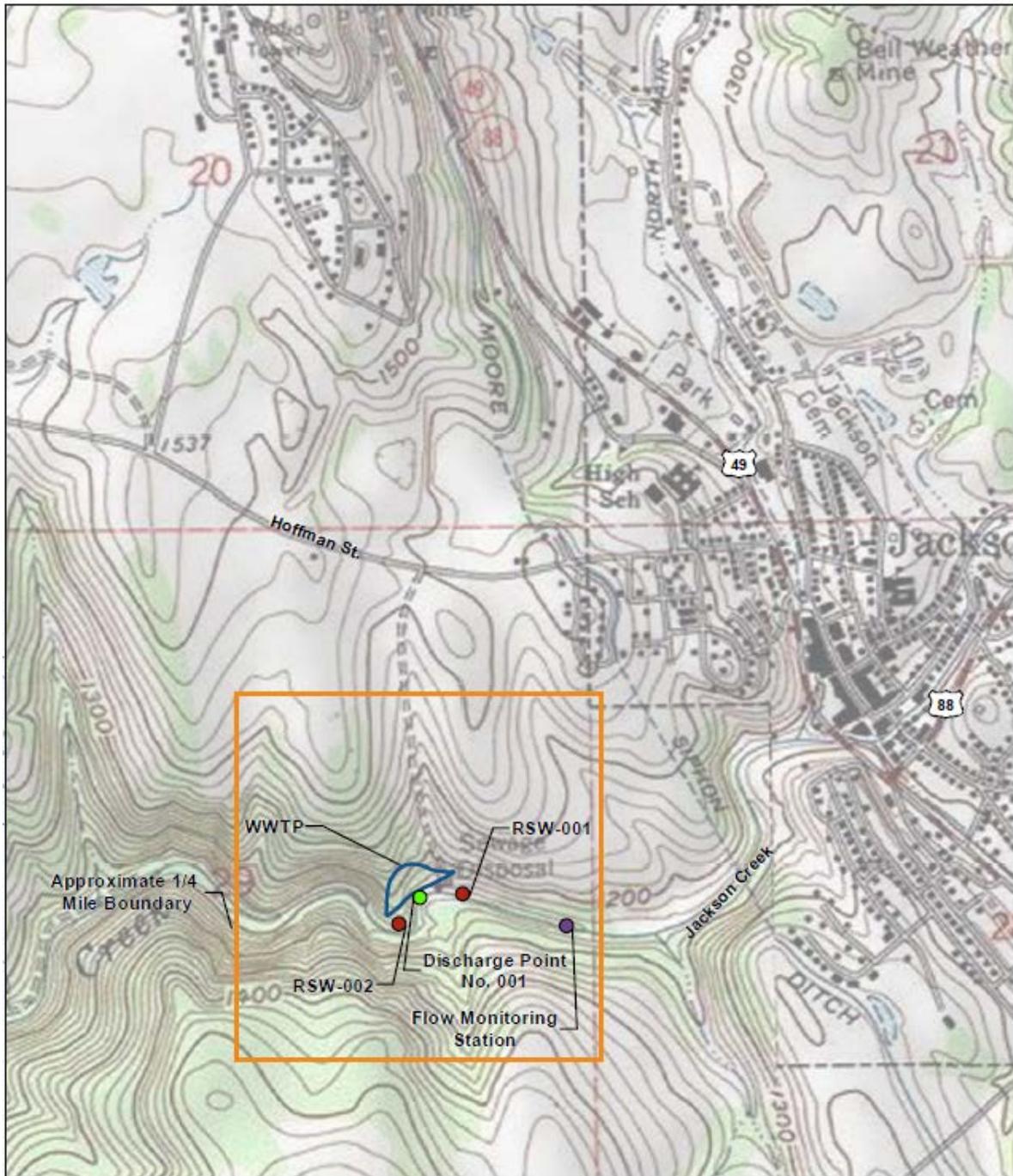
n is the number of samples.

Toxicity Reduction Evaluation (TRE)

TRE is a study conducted in a 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.)

B.

ATTACHMENT B – MAP



Symbology

- Flow Monitoring Station
- Discharge Point Location
- Receiving Water Monitoring Locations

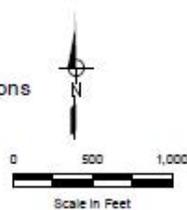


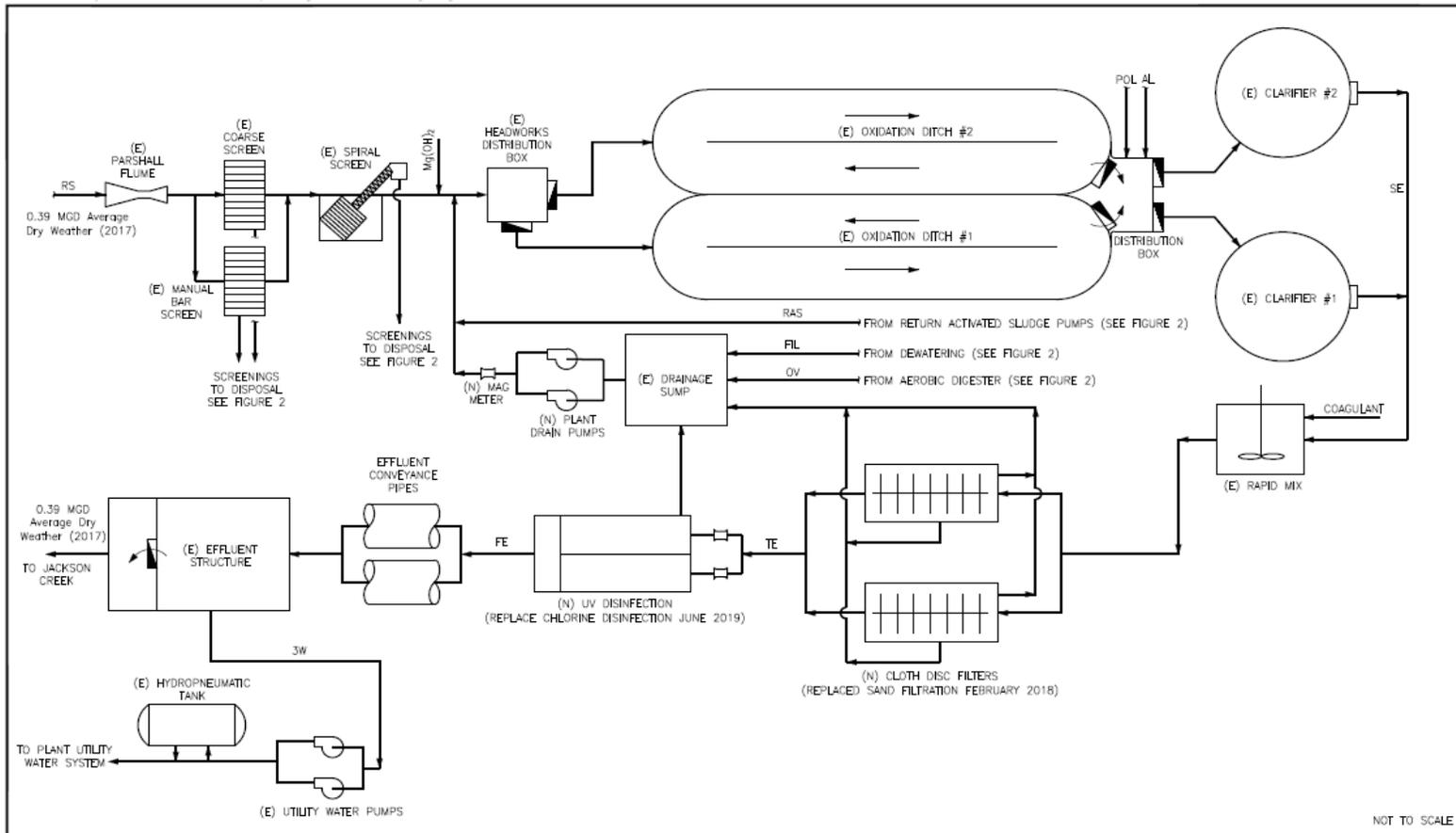
Figure 1

Site Vicinity Map

City of Jackson WWTP
Report of Waste Discharge

ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. City of Jackson Wastewater Treatment Plant Flow Schematic

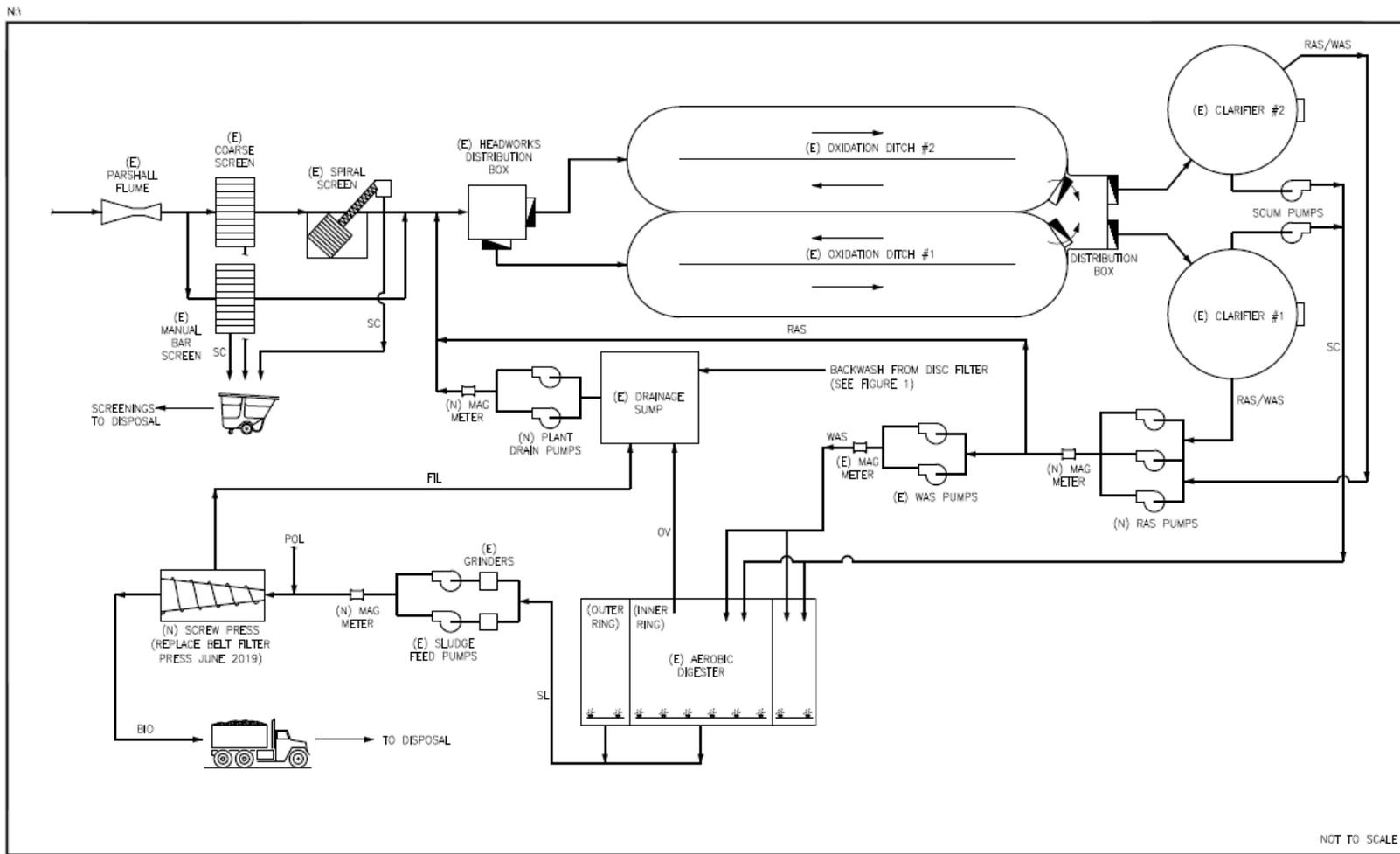


LEGEND	ABBREVIATIONS	
FLOW METER	3W 3 WATER	RS RAW SEWAGE
PUMP	AL ALUM	SE SECONDARY EFFLUENT
WEIR	FE FINAL EFFLUENT	TE TERTIARY EFFLUENT
	POL POLYMER	



Liquid Flow Diagram
City of Jackson
2018 Report of Waste Discharge

Figure C-2. City of Jackson Wastewater Treatment Plant Biosolids Schematic



NOT TO SCALE

LEGEND		ABBREVIATIONS	
	FLOW METER	BIO	BIOSOLIDS
	PUMP	RAS	RETURN ACTIVATED SLUDGE
	WEIR	FIL	FILTRATE
		SC	SCUM
		OV	OVERFLOW
		WAS	WASTE ACTIVATED SLUDGE
		POL	POLYMER



Solids Flow Diagram

City of Jackson
2018 Report of Waste Discharge

D.

ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any non-compliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1))

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g))
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c))

F. Inspection and Entry

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

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

G. Bypass

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

5. Notice

- a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i))
- b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2020, all notices shall be submitted electronically to the initial recipient (State Water Board), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii))

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for non-compliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that non-compliance was caused by upset, and before an action for non-compliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2))
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv))
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4))

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

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

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:
 - a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;
 - b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge;

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

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 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 Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R. § 122.22(e))

C. Monitoring Reports

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

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

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

As of 21 December 2020, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient (State Water Board) defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3. 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 results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
(40 C.F.R. § 122.41(l)(1)(iii))

G. Anticipated Non-compliance

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

H. Other Non-compliance

The Discharger shall report all instances of non-compliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For non-compliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Central Valley Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7))

I. Other Information

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

J. Initial Recipient for Electronic Reporting Data

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

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

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

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

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2))
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3))

E.

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Contents

I.	General Monitoring Provisions	E-2
II.	Monitoring Locations	E-3
III.	Influent Monitoring Requirements.....	E-3
	A. Monitoring Location INF-001	E-3
IV.	Effluent Monitoring Requirements	E-4
	A. Monitoring Location EFF-001	E-4
V.	Whole Effluent Toxicity (WET) Testing Requirements	E-5
VI.	Land Discharge Monitoring Requirements – Not Applicable	E-8
VII.	Recycling Monitoring Requirements – Not Applicable	E-8
VIII.	Receiving Water Monitoring Requirements	E-8
	A. Monitoring Locations RSW-001 and RSW-002	E-8
IX.	Other Monitoring Requirements	E-9
	A. Biosolids – Not Applicable.....	E-9
	B. Municipal Water Supply	E-9
	C. Ultraviolet Light (UV) Disinfection System.....	E-9
	D. Effluent and Receiving Water Characterization	E-10
X.	Reporting Requirements	E-13
	A. General Monitoring and Reporting Requirements	E-13
	B. Self-Monitoring Reports (SMR's).....	E-14
	C. Discharge Monitoring Reports (DMR's).....	E-17
	D. Other Reports	E-17

Tables

Table E-1.	Monitoring Station Locations	E-3
Table E-2.	Influent Monitoring	E-3
Table E-3.	Effluent Monitoring.....	E-4
Table E-4.	Chronic Toxicity Testing Dilution Series.....	E-7
Table E-5.	Receiving Water Monitoring Requirements.....	E-8
Table E-6.	Municipal Water Supply Monitoring Requirements.....	E-9
Table E-7.	UV Disinfection System Monitoring Requirements.....	E-9
Table E-8.	Effluent and Receiving Water Characterization Monitoring	E-10
Table E-9.	Monitoring Periods and Reporting Schedule.....	E-14
Table E-10.	Reporting Requirements for Special Provisions Reports.....	E-17

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Final effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory accredited for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event an accredited laboratory is not available to the Discharger for any on-site field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine, such analyses performed by a non-accredited laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any on-site field measurements such as pH, dissolved oxygen, turbidity, temperature, and residual chlorine must be kept on-site in the Facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E.** Monitoring results, including non-compliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- 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 entering into the treatment process.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to commingling with other waste streams or being discharged to Jackson Creek.
--	RSW-001	Jackson Creek, approximately 330 feet upstream of Discharge Point 001.
--	RSW-002	Jackson Creek, approximately 290 feet downstream of Discharge Point 001.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.
--	UVS-001 ¹	A location where a representative sample of wastewater can be collected immediately downstream of the ultraviolet light (UV) disinfection system.

¹ The Discharger shall conduct monitoring at Monitoring Location UVS-001 once the UV disinfection system becomes operational.

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

¹ 24-hour flow proportional composite.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
-----------	-------	-------------	----------------------------	---------------------------------

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

- 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	1/Week	2
pH	standard units	Grab	2/Week ^{3,4}	2
Total Suspended Solids	mg/L	24-hr Composite ¹	1/Week	2
Priority Pollutants				
Chlorodibromomethane	µg/L	Grab	1/Month ⁵	2,6
Cyanide, Total (as CN)	µg/L	24-hr Composite ¹	1/Month	2,6
Dichlorobromomethane	µg/L	Grab	1/Month ⁵	2,6
Mercury, Total Recoverable	ng/L	Grab	1/Quarter	2,6,7
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week ^{3,8}	2
	lbs/day	Calculate	1/Week	--
Chlorine, Total Residual	mg/L	Meter	Continuous ⁹	2,10
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	2
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Month	2
Nitrate Plus Nitrite, Total (as N)	mg/L	Grab	1/Month	2
Temperature	°C	Grab	2/Week ^{3,4}	2
Total Coliform Organisms	MPN/100 mL	Grab	3/Week ^{11,12}	2
Total Dissolved Solids	mg/L	Grab	1/Quarter	2
Total Trihalomethanes ¹³	µg/L	Grab	1/Month ⁵	2
Turbidity	NTU	Meter	Continuous ¹⁴	2

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
-----------	-------	-------------	----------------------------	---------------------------------

- 1 24-hour flow proportional composite.
- 2 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods 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 Monitoring for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes is required at Monitoring Location EFF-001 until the Discharger submits written certification that a chlorine-based disinfection system is no longer in use, chlorine byproducts are no longer present, chlorine containing chemicals are not added to the treatment process for wastewater discharged to surface waters, and 1 year of non-detect (ND) results have been recorded. The monitoring change may only be implemented after the Discharger receives written approval from the Executive Officer.
- 6 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).
- 7 Unfiltered total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2). The analysis of total mercury shall be by U.S. EPA Method 1631 (Revision E), with an RL of 0.5 ng/L.
- 8 Concurrent with whole effluent toxicity monitoring.
- 9 The Discharger shall monitor chlorine continuously until the UV disinfection system is fully operational, after which the Discharger may request in writing that chlorine residual monitoring be reduced to only periods when chlorine is used at the Facility. Approval for this change shall be based on whether or not previous monitoring results show that chlorine residual effluent limits have been met. The monitoring change may only be implemented after the Discharger receives written approval from the Executive Officer.
- 10 Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.
- 11 Total coliform organisms samples may be collected at any point following disinfection.
- 12 Once the UV disinfection system becomes operational, this Discharger shall conduct monitoring for total coliform organisms at Monitoring Location UVS-001 and cease total coliform organisms monitoring at EFF-001.
- 13 The sum of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
- 14 Report daily average and maximum turbidity.

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

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 semi-annual 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 semi-annual chronic toxicity testing. If the result of the routine chronic toxicity testing event exhibits toxicity, demonstrated by a result greater than 1.3 TUC (as 100/EC₂₅) 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 – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test).
5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (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	14.3	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

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

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than 14 days after receiving notification of a test failure. A test failure is defined as follows:
 - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Method Manual, and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in the Method Manual.
- C. WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.
- D. WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory’s complete report provided to the Discharger and shall be in accordance with the appropriate “Report Preparation and Test Review” sections of the method manuals. At a minimum, WET monitoring shall be reported as follows:
1. **Chronic WET Reporting.** Routine and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the monthly 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 monthly SMR’s shall contain an updated chronology of chronic toxicity test results, expressed in TUC, and organized by test species, type of test (survival, growth, or reproduction), and monitoring type, i.e., routine, compliance, Toxicity Evaluation Study (TES), or TRE monitoring.
 2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly SMR’s and reported as percent survival.

3. **TRE Reporting.** Reports for TRE's shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan, or as amended by the Discharger's TRE Action Plan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Jackson 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
Flow	MGD	Meter	1/Day ¹	--
Amador Lake Percent Effluent	Percent	Calculate	1/Year	--
Conventional Pollutants				
pH	standard units	Grab	1/Week ²	3
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab	1/Week ²	3
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month ²	3
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter ²	3
Temperature	°C	Grab	1/Week ²	3
Turbidity	NTU	Grab	1/Week ²	3

¹ Monitoring required at Monitoring Location RSW-001 only. Monitoring for flow at Monitoring Location RSW-001 shall be conducted approximately 780 feet upstream of Discharger Point 001.

² 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.

³ 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 – Not Applicable

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
Electrical Conductivity @ 25°C ¹	µmhos/cm	Grab	1/Year	²

¹ If the water supply is from more than one source, electrical conductivity shall be reported as a weighted average and copies of supporting calculations shall be included.
² Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods requested by the Discharger that have been approved by the Central Valley Water Board or the State Water Board.

C. Ultraviolet Light (UV) Disinfection System

1. Monitoring Location UVS-001

- a. The Discharger shall monitor the UV disinfection system, once it becomes operational, at Monitoring Location UVS-001 as follows:

Table E-7. UV Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	MGD	Meter	UVS-001	Continuous ¹
Number of UV banks in operation ²	Number	Observation	N/A	Continuous ¹
UV Transmittance	Percent (%)	Meter	UVS-001	Continuous ¹
UV Dose ³	mJ/cm ²	Calculate	N/A	Continuous ¹
Total Coliform Organisms	MPN/100 mL	Grab	UVS-001	3/Week

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
-----------	-------	-------------	---------------------	----------------------------

- 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. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.
- ² Report daily minimum and daily maximum number of UV banks in operation for each channel in operation.
- ³ Report daily minimum hourly average UV dose and UV transmittance and daily average UV dose and UV transmittance. The minimum hourly average shall consist of the lowest hourly average provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, an average shall be calculated based on the actual operation time.

D. Effluent and Receiving Water Characterization

1. **Quarterly Monitoring.** Quarterly samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in Table E-8, below. Quarterly monitoring shall be conducted during the year 2021 (4 consecutive samples, evenly distributed throughout the year) and the results of such monitoring shall be submitted to the Central Valley Water Board with the monthly SMR's. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.
2. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
3. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-8, below.

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
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
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
1,2,4-trichlorobenzene	µg/L	Grab	1
1,2-dichloroethane	µg/L	Grab	0.5
1,2-dichlorobenzene	µg/L	Grab	0.5
1,3-dichlorobenzene	µg/L	Grab	0.5
1,4-dichlorobenzene	µg/L	Grab	0.5
1,2-Benzanthracene	µg/L	Grab	5
1,2-Diphenylhydrazine	µg/L	Grab	1
2-Chlorophenol	µg/L	Grab	5
2,4-Dichlorophenol	µg/L	Grab	5
2,4-Dimethylphenol	µg/L	Grab	2
2,4-Dinitrophenol	µg/L	Grab	5
2,4-Dinitrotoluene	µg/L	Grab	5
2,4,6-Trichlorophenol	µg/L	Grab	10
2,6-Dinitrotoluene	µg/L	Grab	5
2-Nitrophenol	µg/L	Grab	10
2-Chloronaphthalene	µg/L	Grab	10
3,3'-Dichlorobenzidine	µg/L	Grab	5
3,4-Benzofluoranthene	µg/L	Grab	10
4-Chloro-3-methylphenol	µg/L	Grab	5
4,6-Dinitro-2-methylphenol	µg/L	Grab	10
4-Nitrophenol	µg/L	Grab	10
4-Bromophenyl phenyl ether	µg/L	Grab	10
4-Chlorophenyl phenyl ether	µg/L	Grab	5
Acenaphthene	µg/L	Grab	1
Acenaphthylene	µg/L	Grab	10
Anthracene	µg/L	Grab	10
Benzidine	µg/L	Grab	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	Grab	2
Benzo(g,h,i)perylene	µg/L	Grab	5
Benzo(k)fluoranthene	µg/L	Grab	2
Bis(2-chloroethoxy) methane	µg/L	Grab	5
Bis(2-chloroethyl) ether	µg/L	Grab	1
Bis(2-chloroisopropyl) ether	µg/L	Grab	10
Bis(2-ethylhexyl) phthalate 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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
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
Chromium (VI)	µg/L	24-hr Composite ⁴	10
Copper	µg/L	24-hr Composite ⁴	25
Cyanide ²	µg/L	24-hr Composite ⁴	5
Fluoride	µg/L	24-hr Composite ⁴	--
Iron	µg/L	24-hr Composite ⁴	--
Lead	µg/L	24-hr Composite ⁴	2
Mercury ²	µg/L	Grab	0.5
Manganese	µg/L	24-hr Composite ⁴	--
Nickel	µg/L	24-hr Composite ⁴	20
Selenium	µg/L	24-hr Composite ⁴	5
Silver	µg/L	24-hr Composite ⁴	2
Thallium	µg/L	24-hr Composite ⁴	1
Zinc	µg/L	24-hr Composite ⁴	20
4,4'-DDD	µg/L	24-hr Composite ⁴	0.05
4,4'-DDE	µg/L	24-hr Composite ⁴	0.05
4,4'-DDT	µg/L	24-hr Composite ⁴	0.01
alpha-Endosulfan	µg/L	24-hr Composite ⁴	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite ⁴	0.01
Aldrin	µg/L	24-hr Composite ⁴	0.005
beta-Endosulfan	µg/L	24-hr Composite ⁴	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite ⁴	0.005
Chlordane	µg/L	24-hr Composite ⁴	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite ⁴	0.005
Dieldrin	µg/L	24-hr Composite ⁴	0.01
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

Parameter	Units	Effluent Sample Type	Maximum Reporting Level ¹
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	mg/L	24-hr Composite ⁴	--
Flow ²	MGD	Meter	--
Hardness (as CaCO ₃) ²	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	24-hr Composite ⁴	--
Mercury, Methyl	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	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 ²	mg/L	24-hr Composite ⁴	--

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

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

⁴ 24-hour flow proportional composite.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each

compliance due date, the specified document or a written report detailing compliance or non-compliance with the specific date and task. If non-compliance is reported, the Discharger shall state the reasons for non-compliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

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

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program website http://www.waterboards.ca.gov/water_issues/programs/ciwqs/. The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit monthly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMR's are required even if there is no discharge. If no discharge occurs during the month, the monitoring report must be submitted stating that there has been no discharge.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-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
3/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1 st 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
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

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

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

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

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

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
- d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an average monthly effluent limitation (AMEL), average weekly effluent limitation (AWEL), or maximum daily effluent limitation (MDEL) for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
- b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an

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

6. The Discharger shall submit SMR's in accordance with the following requirements:
 - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements (WDR's); discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all SMR's for which sample analyses were performed.
7. The Discharger shall submit in the SMR's calculations and reports in accordance with the following requirements:
 - a. **Mass Loading Limitations.** For ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMR's. The mass loading shall be calculated as follows:
$$\text{Mass Loading (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34$$
For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.
 - b. **Removal Efficiency (BOD₅ and TSS).** The Discharger shall calculate and report the percent removal of BOD₅ 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 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 December SMR. The total calendar annual mass loading values shall be calculated as specified in section VII.B of the Waste Discharge Requirements.
 - d. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in section VII.D of the Waste Discharge Requirements.
 - e. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall report monthly in the SMR the dissolved oxygen concentrations in the receiving water (Monitoring Locations RSW-001 and RSW-002).

- f. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity change in the receiving water applicable to the natural turbidity condition specified in section V.A.17.a-e of the Waste Discharge Requirements.
- g. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature change in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.
- h. **Amador Lake Percent Effluent (Compliance with the 20:1 Dilution Ratio).** The Discharger shall calculate and report the percent effluent in Amador Lake in the December SMR. The percent effluent in Amador Lake shall be calculated as described in section VII.H of the Waste Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

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

D. Other Reports

- 1. **Special Study Technical Reports and Progress Reports.** Special Provisions contained in section VI of the Waste Discharge Requirements include requirements to submit special study technical reports and progress reports. Table E-10 summarizes the technical reports required by the Special Provisions and due dates for report submittal. All special study technical reports and progress reports shall be submitted electronically via CIWQS submittal. Reports should be uploaded as a PDF, Microsoft Word, or Microsoft Excel file attachment. If there are any discrepancies between the information presented in Table E-10 and the Special Provisions (section VI of the Waste Discharge Requirements), the information in the Special Provisions shall supersede the information in Table E-10.

Table E-10. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Update Salinity Evaluation and Minimization Plan (Special Provision VI.C.3.a)	31 July 2022 if the effluent electrical conductivity annual average of 700 μ mhos/cm is exceeded during the permit term.

- 2. Within 60 days of permit adoption, the Discharger shall submit a report electronically via CIWQS submittal outlining RL's, MDL's, and analytical methods for the constituents listed in tables E-2, E-3, E-5, E-6 and E-7. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in sections 2.3 and 2.4 of the SIP. The maximum required RL's for priority pollutant constituents shall be based on the ML's contained in Appendix 4 of the SIP, determined in accordance with sections 2.4.2 and 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 provides required maximum RL's in accordance with the SIP.

3. **Annual Operations Report.** By 1 February of each year, the Discharger shall submit a written report to the Central Valley Water Board electronically via CIWQS submittal containing the following:
 - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the Facility as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
 - e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the WDR's.

F.

ATTACHMENT F – FACT SHEET

Contents

I.	Permit Information.....	F-3
II.	Facility Description.....	F-4
	A. Description of Wastewater and Biosolids Treatment and Controls.....	F-4
	B. Discharge Points and Receiving Waters.....	F-4
	C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data.....	F-5
	D. Compliance Summary.....	F-6
	E. Planned Changes.....	F-6
III.	Applicable Plans, Policies, and Regulations.....	F-7
	A. Legal Authorities.....	F-7
	B. California Environmental Quality Act (CEQA).....	F-7
	C. State and Federal Laws, Regulations, Policies, and Plans.....	F-7
	D. Impaired Water Bodies on CWA 303(d) List.....	F-9
	E. Other Plans, Policies and Regulations.....	F-10
IV.	Rationale For Effluent Limitations and Discharge Specifications.....	F-10
	A. Discharge Prohibitions.....	F-11
	B. Technology-Based Effluent Limitations.....	F-13
	1. Scope and Authority.....	F-13
	2. Applicable Technology-Based Effluent Limitations.....	F-13
	C. Water Quality-Based Effluent Limitations (WQBEL's).....	F-14
	1. Scope and Authority.....	F-14
	2. Applicable Beneficial Uses and Water Quality Criteria and Objectives.....	F-14
	3. Determining the Need for WQBEL's.....	F-23
	4. WQBEL Calculations.....	F-42
	5. Whole Effluent Toxicity (WET).....	F-44
	D. Final Effluent Limitation Considerations.....	F-45
	1. Mass-based Effluent Limitations.....	F-45
	2. Averaging Periods for Effluent Limitations.....	F-46
	3. Satisfaction of Anti-Backsliding Requirements.....	F-46
	4. Antidegradation Policies.....	F-47
	5. Stringency of Requirements for Individual Pollutants.....	F-47
	E. Interim Effluent Limitations – Not Applicable.....	F-49
	F. Land Discharge Specifications – Not Applicable.....	F-49
	G. Recycling Specifications – Not Applicable.....	F-49
V.	Rationale for Receiving Water Limitations.....	F-49
	A. Surface Water.....	F-49
	B. Groundwater – Not Applicable.....	F-49
VI.	Rationale for Provisions.....	F-49
	A. Standard Provisions.....	F-49
	B. Special Provisions.....	F-50
	1. Reopener Provisions.....	F-50
	2. Special Studies and Additional Monitoring Requirements.....	F-51
	3. Best Management Practices and Pollution Prevention.....	F-54
	4. Construction, Operation, and Maintenance Specifications.....	F-54
	5. Special Provisions for Publicly-Owned Treatment Works (POTW's).....	F-55
	6. Other Special Provisions.....	F-55
	7. Compliance Schedules – Not Applicable.....	F-55

- VII. Rationale for Monitoring and Reporting Requirements F-55
 - A. Influent Monitoring F-56
 - B. Effluent Monitoring F-56
 - C. Whole Effluent Toxicity Testing Requirements F-57
 - D. Receiving Water Monitoring F-57
 - 1. Surface Water F-57
 - 2. Groundwater – Not Applicable F-58
 - E. Other Monitoring Requirements F-58
- VIII. Public Participation..... F-59
 - A. Notification of Interested Persons F-59
 - B. Written Comments F-59
 - C. Public Hearing F-60
 - D. Reconsideration of Waste Discharge Requirements F-60
 - E. Information and Copying F-60
 - F. Register of Interested Persons..... F-60
 - G. Additional Information F-60

Tables

- Table F-1. Facility Information..... F-3
- Table F-2. Historic Effluent Limitations and Monitoring Data F-5
- Table F-3. Basin Plan Beneficial Uses F-8
- Table F-4. 303 (d) List for Amador Lake F-10
- Table F-5. Summary of Technology-Based Effluent Limitations F-14
- Table F-6. Summary of CTR Criteria for Hardness-dependent Metals F-17
- Table F-7. Verification of CTR Compliance for Nickel F-22
- Table F-8. Verification of CTR Compliance for Silver F-22
- Table F-9. Salinity Water Quality Criteria/Objectives..... F-24
- Table F-10. Data Summary for 1,2-Diphenylhydrazine..... F-26
- Table F-11. Cyanide Special Study Results F-33
- Table F-12. Summary of Water Quality-Based Effluent Limitations F-43
- Table F-13. Whole Effluent Chronic Toxicity Testing Results F-45
- Table F-14. Summary of Final Effluent Limitations F-48

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	5B030103001
CIWQS Facility Place ID	214642
Discharger	City of Jackson
Name of Facility	Wastewater Treatment Plant
Facility Address	39 North Highway 49-88
	Jackson, CA 95642
	Amador County
Facility Contact, Title and Phone	Don Brown, Chief Plant Operator, (916) 544-5120
Authorized Person to Sign and Submit Reports	Yvonne Kimball, City Manager, (209) 233-1646
Mailing Address	33 Broadway, Jackson, CA 95642
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	Existing Plant: 0.43 million gallons per day (MGD), average dry weather flow Expanded Plant: 0.71 MGD, average dry weather flow
Facility Design Flow	Existing Plant: 0.43 MGD, average dry weather flow Expanded Plant: 0.71 MGD, average dry weather flow
Watershed	Upper Mokelumne
Receiving Water	Jackson Creek
Receiving Water Type	Inland Surface Water

- A. The City of Jackson (hereinafter Discharger) is the owner and operator of the City of Jackson 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 Jackson Creek, a water of the United States and tributary of the Mokelumne River within the Sacramento-San Joaquin Delta, via Amador Lake and Dry Creek. The Discharger was previously regulated by Order R5-2013-0146-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079391 adopted on 5 December 2013 and amended on 6 February 2015, with an expiration date of 1 December 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.** A site visit was conducted on 18 October 2017 to observe operations and collect additional information to develop permit limitations and requirements for waste discharge. These WDRs are issued based on Regional Board staff's access to information substantially identical to that prescribed in 40 C.F.R. § 122.21(j). Information received after the adoption of this Order and during the WDRs term will be evaluated to determine whether cause exists pursuant to 40 C.F.R. § 122.62 to amend the NPDES permit/WDRs.
- 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 Jackson and serves a population of approximately 4,600. The current design daily average flow capacity of the Facility is 0.43 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system consists of a mechanical bar screen and spiral augur with a washer compactor for screenings, two oxidation ditches, two secondary clarifiers, chlorine injection, four single media sand filters, chlorine contact pipes, and sulfur dioxide dechlorination. Biosolids are digested in an aerated sludge holding tank and dewatered using a belt filter press. Biosolids are hauled off-site to the Potrero Hills Landfill or Silva Ranch once per week. The Facility produces approximately 115 dry tons of dried biosolids annually. Transportation and disposal/reuse of the biosolids are regulated by U.S. EPA under 40 C.F.R. part 503.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 29, T6N, R11E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to Jackson Creek, a water of the United States and tributary of the Mokelumne River within the Sacramento-San Joaquin Delta, via Amador Lake and Dry Creek, at a point latitude 38° 20' 40.22" N and longitude 120° 47' 04.44" W.

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

Effluent limitations contained in Order R5-2013-0146-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2013-0146-01 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (January 2015 – December 2017)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	0.71 ¹	--	--	2.942 ²
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	5.4	12	18
	lbs/day ³	60	90	120	57	102	120
	% Removal	85	--	--	97 ⁴	--	--
pH	standard units	--	--	6.5 – 8.0	--	--	6.2 – 7.6 ⁵
Total Suspended Solids	mg/L	10	15	20	1.7	3.7	10
	lbs/day ³	60	90	120	26	42	55
	% Removal	85	--	--	98 ⁴	--	--
Priority Pollutants							
Chlorodibromomethane	µg/L	0.41	--	0.82	2.7	--	2.7
Cyanide, Total (as CN)	µg/L	4.2	--	8.8	18	--	18
Dichlorobromomethane	µg/L	0.56	--	1.4	8.2	--	8.2
Mercury, Total Recoverable	lbs/month	0.0016	--	--	0.00088	--	--
Non-Conventional Pollutants							
Ammonia, Total (as N)	mg/L	2.3	--	5.5	1.0	--	3.7
	lbs/day ³	14	--	33	10	--	33
Chlorine, Total Residual	mg/L	--	0.011 ⁶	0.019 ⁷	--	--	2.8
Nitrate Plus Nitrite, Total (as N)	mg/L	10	--	--	17	--	--
Total Trihalomethanes ⁸	µg/L	80	--	--	102	--	--
Total Coliform Organisms	MPN/100 mL	2.2 ⁹	23 ¹⁰	240 ¹¹	--	--	350
Acute Toxicity	% Survival	--	--	70 ¹² /90 ¹³	--	--	95 ¹⁴

Parameter	Units	Effluent Limitation			Monitoring Data (January 2015 – December 2017)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

- 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 0.71 MGD.
- 4 Represents the minimum reported percent removal.
- 5 In the cover letter submitted with the November 2015 eSMR, the Discharger indicated that the pH readings of 6.17 and 6.15 recorded on 27 November 2015 and 29 November 2015, respectively, were the result of a malfunction with the chlorinator, which to an increased dosage of sulfur dioxide and lower effluent pH levels.
- 6 Applied as a 4-day average effluent limitation.
- 7 Applied as a 1-hour average effluent limitation.
- 8 The sum of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
- 9 Applied as a 7-day median effluent limitation.
- 10 Not to be exceeded more than once in any 30-day period.
- 11 Applied as an instantaneous maximum effluent limitation.
- 12 Minimum percent survival for any one bioassay.
- 13 Median percent survival of three consecutive acute bioassays.
- 14 Represents the minimum observed percent survival.

D. Compliance Summary

1. The Central Valley Water Board issued Administrative and Civil Liability (ACL) Complaint R5-2016-0534 on 9 June 2016, which proposed to assess a civil liability of \$15,000 against the Discharger for effluent violations for pH and total coliform organisms that occurred from the time period of 1 January 2014 through 31 December 2015 under Order R5-2013-0146-01. The Discharger is in the process of completing a compliance project consisting of upgrades to the existing backup chlorinator, the replacement of broken vacuum gauges, and the refurbishment of the automatic switch over vacuum regulators.
2. The Central Valley Water Board issued ACL Complaint R5-2016-0560 on 7 September 2016, which proposed to assess a civil liability of \$24,000 against the Discharger for effluent violations for pH and total coliform organisms that occurred from the time period of 1 January 2016 through 30 June 2016 under Order R5-2013-0146-01. The Discharger paid the mandatory minimum penalty of \$24,000.
3. The Central Valley Water Board issued Settlement Agreement and Stipulation for Entry of Administrative Civil Liability Order R5-2017-0506 on 20 March 2017, which imposed a civil liability of \$148,950 against the Discharger for failing to prepare and implement a sanitary sewer management plan and failing to properly report all sanitary sewer system overflows from the time period of June 2012 through December 2015. The Discharger agreed to pay the entire penalty of \$148,950 to the State Water Board's Cleanup and Abatement Account.

E. Planned Changes

The Discharger is in the process of completing a major Facility upgrade project, which includes the following elements:

1. Upgrading the existing oxidation ditches to improve the efficiency of the simultaneous nitrification/denitrification process;

2. Replacing the four single media sand filters with two disc filtration units to address performance issues and increase capacity;
3. Replacing the chlorine disinfection system with a new ultraviolet light (UV) disinfection system to eliminate/reduce disinfection byproduct and cyanide formation; and
4. Replacing the existing biosolids belt filter press with a new screw press to improve dewatering performance.

The Discharger plans to complete construction of the Facility upgrades by 1 June 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 Plans.** Requirements of this Order specifically implement the applicable Water Quality Control Plans.
 - a. **Basin Plan.** The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition* (Revised July 2016), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table II-1, section II, does not specifically identify beneficial uses for Jackson Creek, but does identify present and potential uses for the Sacramento-San Joaquin Delta, to which Jackson Creek, via Amador Lake, Dry Creek, and the Mokelumne River, is tributary. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Thus, beneficial uses applicable to Jackson Creek are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Jackson Creek	<u>Existing:</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); and navigation (NAV).

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.
3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, which became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution 68-16 (“*Statement of Policy with Respect to Maintaining High Quality of Waters in California*”) (State Antidegradation Policy). The State Antidegradation Policy is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. The State Antidegradation Policy requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and the State Antidegradation Policy. The Central Valley Water Board finds this Order is consistent with the federal and State Water Board antidegradation regulations and policy.
5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels (MCL's) designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code requires that *“the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”*.

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

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.
9. **Storm Water Requirements.** 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 does not require wastewater treatment facilities with design flows less than 1 MGD to obtain coverage under State Water Board Water Quality Order 2014-0057-DWQ, General Permit for Storm Water Discharges Associated with Industrial Activities (NPDES General Permit No. CAS000001). Therefore, this Order does not regulate storm water.

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 26 June 2015, U.S. EPA gave final approval to California's 2012 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." Jackson Creek is not listed as a WQLS on the 2012 303(d) list of impaired water bodies. The listing for Amador Lake includes pH (high).

2. **Total Maximum Daily Loads (TMDL's).** Table F-4, below, identifies the 303(d) listings and any applicable TMDL's. At the time of this permit renewal, there are no approved TMDL's with waste load allocations (WLA's) that apply to this Facility.

Table F-4. 303 (d) List for Amador Lake

Pollutant	Potential Sources	TMDL Status
pH (High)	Source Unknown	Planned for Completion (2021)

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, Polices and Regulations

1. **Title 27.** The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of CCR, Title 27, section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to CCR, Title 27, section 20090(a), is based on the following:
 - a. The waste consists primarily of domestic sewage and treated effluent;
 - b. The waste discharge requirements are consistent with water quality objectives; and
 - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." Federal regulations,

40 C.F.R. section 122.44(d)(1)(vi), further provide that “[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable state water quality standard, the permitting authority must establish effluent limits.”

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

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

A. Discharge Prohibitions

- 1. Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code sections 13260 and 13376 that requires filing of a ROWD to discharge. Discharges not described in this Order are prohibited.
- 2. Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at 40 C.F.R. section 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the Facility. Federal regulations, 40 C.F.R. section 122.41(m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This

section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives be established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.
4. **Prohibition III.D (No inclusion of pollutant-free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on 40 C.F.R. section 122.41 et seq. that requires the proper design and operation of treatment facilities.
5. **Prohibition III.E (No discharge of hazardous waste).** This prohibition is based on CCR, Title 22, section 66261.1 et seq. that prohibits discharge of hazardous waste.
6. **Prohibition III.F (Maintain dilution ratio of 20:1 or greater in Amador Lake).** This prohibition is based on the Division of Drinking Water (DDW) recommendation that discharges from wastewater treatment plants to municipal water supplies maintain a minimum of 20:1 dilution, in order to ensure the protection of the downstream domestic beneficial use of Jackson Creek and public health. This prohibition prohibits the discharge of wastewater to Jackson Creek when a minimum dilution of 20:1 is not provided by Amador Lake, located downstream of Discharge Point 001. This prohibition is in effect until DDW notifies the Central Valley Water Board that all customers have been provided an acceptable drinking water source.

The Jackson Valley Irrigation District (JVID) delivers non-potable irrigation water, some of which is effluent from the Discharger, from Amador Lake to customers in the Jackson Valley area for irrigation purposes. JVID customers in the Jackson Valley area include the Lake Amador Resort Area (LARA), located on the banks of Amador Lake, and the Oaks Mobile Home Park, located in Jackson Valley, approximately 1.5 miles downstream of Amador Lake. DDW has determined that Amador Lake water is not suitable for drinking water purposes. Therefore, in 2014, JVID, as required by DDW, replaced LARA's drinking water source from treated Amador Lake water to treated water piped in from Lake Pardee. However, the Oaks Mobile Home Park continues to treat Amador Lake water for domestic use by its residents but is in the process of receiving treated Lake Pardee drinking water, with construction planned for completion in 2018. In addition, approximately 156 Jackson Valley connections that had been using raw water from Amador Lake for domestic purposes are currently being supplied bottled drinking water by JVID. Due to costs constraints only 130 of the 156 residents are scheduled to be connected to Pardee treated drinking water supply. The remaining 26 residences would require up to 1-mile of lateral connections; therefore, to supply these residents with a treated drinking water source, JVID plans to either use contingency funds to connect them to Pardee treated drinking water at a later date or to install treatment units for the Amador water supply at their point of use. Presently, JVID is in the process of using a \$9.5M planning grant from DDW's State Revolving Fund to extend a pipeline carrying treated water from Lake Pardee to the Oaks Mobile Home Park. JVID estimates the project will begin in 2018 and be completed by August 2019. With the uncertainty of removing all raw water domestic users from JVID's irrigation system, DDW has indicated

that it would like the 20:1 dilution requirements to remain in place until all JVID customers are receiving treated potable water.

7. **Prohibition III.G (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 Facility upgrades to provide the treatment capacity for an average dry weather flow of 0.71 MGD and compliance with Special Provision VI.C.6.b of this Order. Previous Order R5-2013-0146-01 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

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

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

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

- a. **BOD₅ 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 BOD₅ 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 BOD₅ and TSS over each calendar month. This Order requires WQBEL's that are equal to or more stringent than the secondary technology-based treatment described in 40 C.F.R. part 133 (see section IV.C.3.c of the Fact Sheet for a discussion on pathogens, which includes WQBEL's for BOD₅ 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 40 C.F.R. section 122.44(d)(1)(vi).

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

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 municipal or domestic supply.

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

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

- a. **Receiving Water and Beneficial Uses.** Refer to section III.C.1, above, for a complete description of the receiving water and beneficial uses.
- b. **Effluent and Ambient Background Data.** The Discharger completed Facility upgrades in December 2014, which included the construction of a lime storage and dosing system and pre-filter coagulation/flocculation improvements, to comply with final effluent limitations and discharge specifications for ammonia, copper, cyanide, dichlorobromomethane, nitrate, total coliform organisms, and turbidity. Therefore, the RPA, as described in section IV.C.3 of this Fact Sheet, was based on data collected since the completion of Facility upgrades, from January 2015 through December 2017, which includes effluent and ambient background data submitted in SMR's.
- c. **Assimilative Capacity/Mixing Zone.** Current flow data indicates that, at times, Jackson Creek is dominated by effluent from the Facility downstream of the discharge. The ephemeral nature of Jackson 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 a mixing zone/dilution study requesting dilution credits. Thus, consistent with the assumptions used for Order R5-2013-0146-01, the worst-case dilution for Jackson Creek is assumed to be zero to provide protection of 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 SIP¹ and the CTR.² The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones.³ Design flows for aquatic life criteria include the lowest 1-day flow with an average reoccurrence frequency of once in 10 years (1Q10) and the lowest average 7 consecutive day flow with an average reoccurrence frequency of once in 10 years (7Q10).⁴ This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a 3-year period, on average.⁵ The CTR requires that when mixing zones are allowed, the CTR criteria apply at the edge of the mixing zone; otherwise, the criteria apply throughout the water body including at the point of discharge.⁶ The CTR does not define the term “ambient,” as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully comply with the CTR and SIP.

Summary Findings

At design discharge conditions, Jackson 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 to define the appropriate water quality criteria in accordance with the CTR and SIP. Otherwise, if ambient downstream hardness was collected on the same day as effluent hardness, the downstream ambient hardness value is used. The Sacramento Superior Court has previously upheld the Central Valley Water Board’s use of effluent hardness levels in effluent-dominated streams when developing effluent limitations for hardness-dependent metals. (*California Sportsfishing Protection Alliance v. California Regional Water Quality Control Board, Central Valley Region*, Super. Ct. Sacramento County, 2012, No. 34-2009-80000309) (Order Denying Petitioners’ Motion to Strike Respondent’s Return of Writ of Mandate and Granting Discharge of the Writ). The ambient hardness for Jackson Creek is represented by the data in Figure F-1, below, which shows ambient hardness ranging from 47 mg/L to 161 mg/L based on all collected ambient data from January 2015 through

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 CaCO₃), or less, the actual ambient hardness of the surface water must be used (40 C.F.R. § 131.38(c)(4)).

³ 40 C.F.R. §131.38(c)(4)(ii)

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

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

⁶ 40 C.F.R. §131.38(c)(2)(i)

December 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 47 mg/L (minimum) up to 161 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.

- i. 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.
- ii. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP, and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, 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.
- iii. Using an ambient hardness that is higher than the minimum observed ambient hardness will result in limits that may allow increased metals to be discharged to Jackson 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.
- iv. 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	75	53 ³	36 ³
Chromium III	75	1,400	160
Cadmium	74 (acute) 75 (chronic)	3.2	2.0
Lead	73	55	2.1
Nickel	75	370	41
Silver	71	2.3	--

CTR Metals	Ambient Hardness (mg/L) ²	CTR Criteria (µg/L, total recoverable) ¹	
		Acute	Chronic
Zinc	75	94	94

- 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 data set shown in Figure F-1.
- ³ CTR criteria for copper calculated using a site-specific WER of 5.0 in accordance with the Discharger's 26 September 2014 WER Study, as discussed in section IV.C.2.f of this Fact Sheet.

Background

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

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

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

Where:

H = ambient hardness (as CaCO₃)¹

WER = water-effect ratio

m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted in order to use a value other than 1. As discussed in section IV.C.2.f, the Discharger conducted a WER study for copper.

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

¹ For this discussion, all hardness values are expressed in mg/L as CaCO₃.

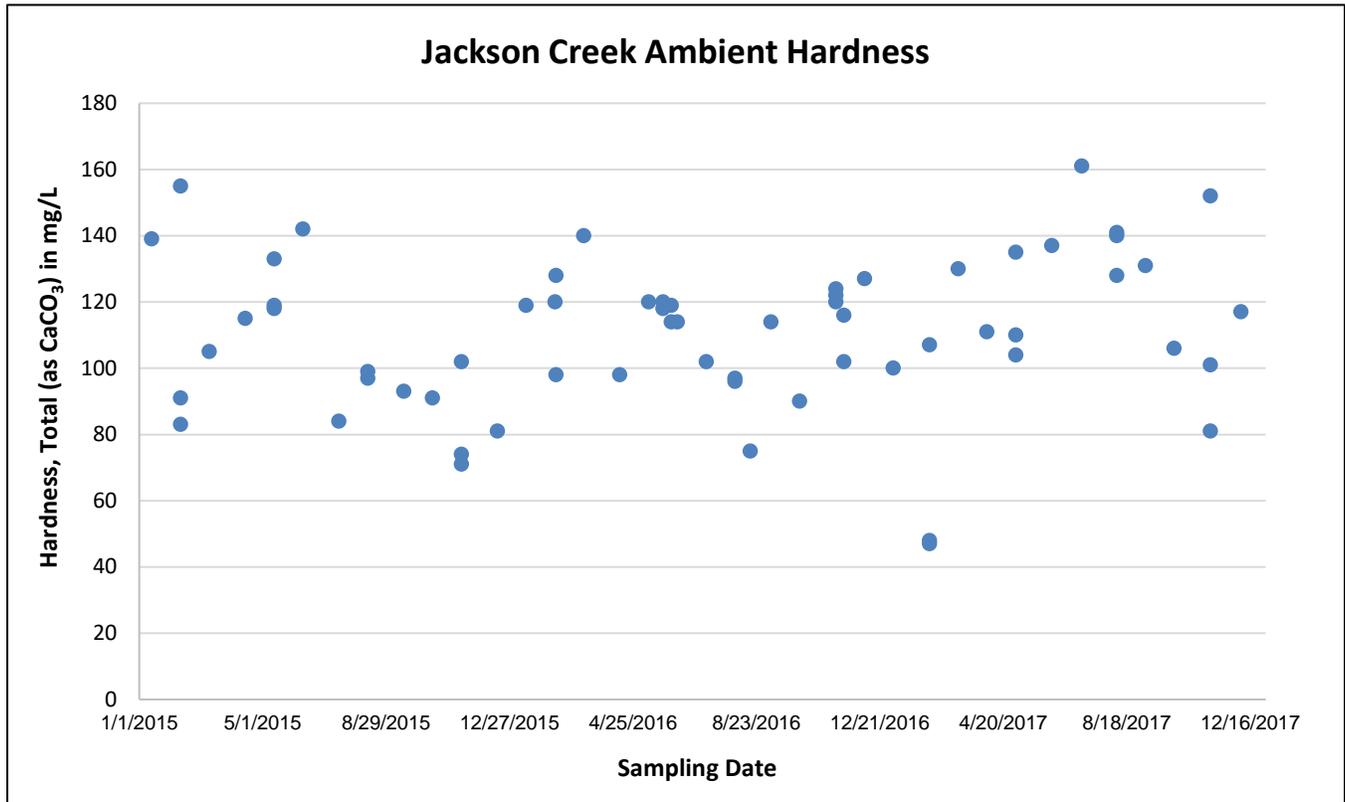
² 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

the 1Q10 and the 7Q10. Since Jackson Creek is considered an effluent-dominated water body, the critical design flow is zero.

Ambient Conditions

The ambient receiving water hardness varied from 47 mg/L to 161 mg/L, based on 63 samples from January 2015 through December 2017 (see Figure F-1).

Figure F-1. Observed Ambient Hardness Concentrations 47 mg/L – 161 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.

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

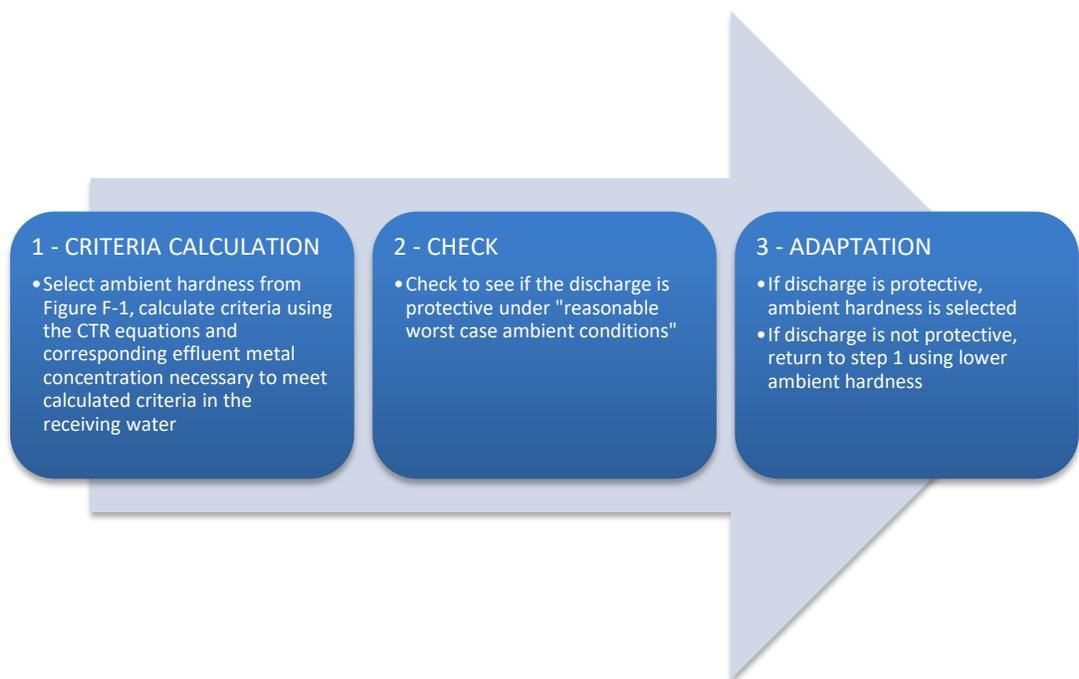
and criteria selected for effluent limitations are protective under “reasonable-worst case ambient conditions.” These conditions represent the receiving water conditions under which derived effluent limitations would ensure protection of beneficial uses under all ambient flow and hardness conditions.

Reasonable worst-case ambient conditions:

- “Low receiving water flow.” CTR design discharge conditions (1Q10 and 7Q10) have been selected to represent reasonable worst-case receiving water flow conditions.
- “High receiving water flow (maximum receiving water flow).” This additional flow condition has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- “Low receiving water hardness.” The minimum receiving water hardness condition of 47 mg/L was selected to represent the reasonable worst-case receiving water hardness.
- “Background ambient metal concentration at criteria.” This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the Facility’s discharge). Based on data in the record, this is a design condition that 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.



1. **CRITERIA CALCULATION.** CTR criteria are calculated using the CTR equations based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 161 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.
2. **CHECK.** U.S. EPA’s simple mass balance equation³ is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. **ADAPT.** If step b results in:
 - (A) Receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.
 - (B) Receiving water metal concentration greater than CTR criteria, then return to step a, selecting a lower ambient hardness value.

The CTR’s hardness-dependent metals criteria equations contain metal-specific constants, so the criteria vary depending on the metal. Therefore, 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.

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 sample results collected in the receiving water, will result in effluent limitations that are protective under all ambient flow conditions. Nickel 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 nickel and silver. As shown in the example tables, ambient hardness values of 75 mg/L (nickel) and 71 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

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)

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.

Table F-7. Verification of CTR Compliance for Nickel

Receiving water hardness used to compute effluent limitations				75 mg/L
Effluent Concentration Allowance (ECA) for Nickel ¹				41 µg/L
	Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions			Complies with CTR Criteria?
	Hardness	CTR Criteria (µg/L)	Ambient Nickel Concentration ² (µg/L)	
1Q10	75	40.9	40.9	Yes
7Q10	75	40.9	40.9	Yes
Max receiving water flow	47	27.6	27.6	Yes

- ¹ The ECA defines effluent quality necessary to meet the CTR criteria in the receiving water. There is no effluent limitation for nickel 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				71 mg/L
Effluent Concentration Allowance (ECA) for Silver ¹				2.3 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	75	2.5	2.3	Yes
7Q10	75	2.5	2.3	Yes
Max receiving water flow	47	1.1	1.1	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.

Water Effects Ratio (WER)

1. **Copper.** The Discharger submitted a *Copper Water-Effect Ratio Study* (Stantec), dated 26 September 2014 (2014 WER Study). The 2014 WER Study followed U.S. EPA's 2001 *Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA 822 R-01-005) (Streamlined WER Procedure). Following the Streamlined WER Procedure, two separate sets of samples were

evaluated on June 2014 and July 2014 to assess ambient conditions and to calculate a freshwater copper WER using the primary test species, *Ceriodaphnia dubia*. Consistent with the Streamlined WER Procedure, the Discharger used the geometric mean of the two sample WER's to calculate final site-specific WER's for dissolved copper. Based on the results of the 2014 WER Study, the Discharger concluded that a dissolved WER for copper of 6.37, based on the effluent data to represent low-flow, zero-dilution discharge conditions, is applicable to the discharge to Jackson Creek.

Based on a review of the 2014 WER Study, the Central Valley Water Board concludes that a WER is applicable to the discharge to Jackson Creek. The Discharger followed appropriate procedures to determine the proposed WER for copper of 6.37. However, the Central Valley Water Board finds that implementing a copper WER value greater than 5.0 would require additional assessment of the fate of copper in the receiving environment and the effects to resident biota, which is beyond the scope of the Streamlined WER Procedure. Therefore, the Central Valley Water Board concludes that a copper WER of 5.0 is appropriate and is sufficient for the Discharger to comply with the hardness-based copper 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 No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential to cause or contribute to an in-stream excursion of an applicable water quality objective; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

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

- i. **Salinity**

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCL's, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The

U.S. EPA National Ambient Water Quality Criteria (NAWQC) for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site-specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort, the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV SALTS.

Table F-9. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective ¹	Secondary MCL ²	U.S. EPA NAWQC	Effluent	
				Average ³	Max
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	51	58
Electrical Conductivity (µmhos/cm) or Total Dissolved Solids (mg/L)	Varies	900, 1,600, 2,200 or 500, 1,000, 1,500	N/A	512 or 318	940 or 430
Sulfate (mg/L)	Varies	250, 500, 600	N/A	45	46.9

- ¹ Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, chapter IV, section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.
- ² The Secondary MCL's are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
- ³ Maximum calendar annual average.

- (1) **Chloride.** The Secondary MCL for chloride is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The NAWQC acute criterion for the protection of freshwater aquatic life for chloride is 860 mg/L and the chronic criterion is 230 mg/L.
- (2) **Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended

level, 1,600 $\mu\text{mhos/cm}$ as an upper level, and 2,200 $\mu\text{mhos/cm}$ as a short-term maximum, or when expressed as total dissolved solids is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum.

- (3) **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(b) **RPA Results**

- (1) **Chloride.** Chloride concentrations in the effluent ranged from 41.1 mg/L to 58 mg/L, with a maximum annual average of 51 mg/L, based on four samples collected between January 2015 and December 2017. The maximum annual average does not exceed the Secondary MCL recommended level and the maximum effluent chloride concentration of 58 mg/L does not exceed the NAWQC criteria for the protection of freshwater aquatic life. The maximum observed receiving water chloride concentration was 11 mg/L based on three samples collected between January 2015 and December 2017.

- (2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's monitoring reports shows a maximum observed annual average electrical conductivity of 512 $\mu\text{mhos/cm}$, with a range from 280 $\mu\text{mhos/cm}$ to 940 $\mu\text{mhos/cm}$. These levels do not exceed the Secondary MCL recommended level. The maximum observed receiving water electrical conductivity was 730 $\mu\text{mhos/cm}$ based on 269 samples collected between January 2015 and December 2017.

Total dissolved solids concentrations in the effluent ranged from 156 mg/L to 430 mg/L, with a maximum annual average of 312 mg/L, based on 15 samples collected between January 2015 and December 2017. These levels do not exceed the Secondary MCL recommended level. The maximum observed receiving water total dissolved solids concentration was 248 mg/L based on three samples collected between January 2015 and December 2017.

- (3) **Sulfate.** Sulfate concentrations in the effluent ranged from 44 mg/L to 46.9 mg/L, with a maximum annual average of 45 mg/L, based on four samples collected between January 2015 and December 2017. These levels do not exceed the Secondary MCL recommended level. The maximum observed receiving water sulfate concentration was 37.4 mg/L based on three samples collected between January 2015 and December 2017.

Based on the relatively low levels of salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above applicable water quality objectives. However, since the Discharger discharges to Jackson Creek, a tributary of Amador Lake and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, in order to ensure the Discharger will continue to control the discharge of salinity, this Order requires the

Discharger to continue to implement a salinity minimization plan. Also, water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

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

- i. **1,2-Diphenylhydrazine**

- (a) **WQO.** The CTR includes a criterion of 0.04 µg/L for 1,2-diphenylhydrazine for the protection of human health for waters from which both water and organisms are consumed.
- (b) **RPA Results.** As shown in the table below, based on data collected between January 2015 and December 2017, the MEC for 1,2-diphenylhydrazine exceeds the applicable Basin Plan objective and the CTR criterion. 1,2-diphenylhydrazine was not detected in the upstream receiving water based on three samples collected from January 2015 through December 2017.

Table F-10. Data Summary for 1,2-Diphenylhydrazine

MEC (µg/L)	Effluent			Background (µg/L)	Lowest MDL (µg/L)	Lowest RL (µg/L)	SIP ML (µg/L)
	No. of Samples	No. of ND	No. of DNQ				
0.24 (DNQ)	4	3	1	<0.16	0.18	1.0	1.0

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

- (1) Required ML's are listed in Appendix 4 of the SIP. Where more than one ML is listed in Appendix 4, the Discharger may select any one of the cited analytical methods for compliance determination. The selected ML used for compliance determination is referred to as the reporting level (RL).
- (2) An RL can be lower than the ML in Appendix 4 only when the Discharger agrees to use an RL that is lower than the ML listed in Appendix 4. The Central Valley Water Board and the Discharger have no agreement to use a RL lower than the listed ML.
- (3) Section 1.2 of the SIP requires that the Regional Board use all available, valid, relevant, representative data and information, as determined by the Regional Board, to implement the SIP. Section 1.2 of the SIP further states that the Regional Board has the discretion to consider if any data are inappropriate or insufficient for use in implementing the SIP.

- (4) Data reported below the ML indicates the data may not be valid due to possible matrix interferences during the analytical procedure.
- (5) Further, section 2.4.5 of the SIP (Compliance Determination) supports the insufficiency of data reported below the ML or RL. In part, it states, "*Dischargers shall be deemed out of compliance with an effluent limitation, for reporting and administrative enforcement purposes, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.*" Thus, if submitted data is below the RL, that data cannot be used to determine compliance with effluent limitations.
- (6) Data reported below the ML is not considered valid data for use in determining reasonable potential. Therefore, in accordance with section 1.2 of the SIP, the Central Valley Water Board has determined that data reported below the ML is inappropriate and insufficient to be used to determine reasonable potential.
- (7) In implementing its discretion, the Central Valley Water Board is not finding that reasonable potential does not exist; rather the Central Valley Water Board cannot make such a determination given the invalid data. Therefore, the Central Valley Water Board will require additional monitoring for such constituents until such time a determination can be made in accordance with the SIP policy.

SIP Appendix 4 cites an ML of 1.0 µg/L for 1,2-diphenylhydrazine. The Discharger used an analytical method that was as sensitive as the ML required by the SIP for three effluent samples. The Discharger used an analytical method that was less stringent than the SIP ML for the sample that returned the estimated result on 16 November 2016. The effluent results were all non-detects or estimated values (i.e., detected but not quantified). Therefore, the effluent data for 1,2-diphenylhydrazine is inappropriate and insufficient to determine reasonable potential under the SIP.

Section 1.3, step 8 of the SIP allows the Central Valley Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of effluent limitations, monitoring for 1,2-diphenylhydrazine will be required quarterly during the year 2021 as part of the effluent and receiving water characterization. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

- c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, BOD₅, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, mercury, nitrate plus nitrite, pH, total coliform organisms, total trihalomethanes, and TSS. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G and a detailed discussion of the RPA for each constituent is provided below.

i. **Ammonia**

- (a) **WQO.** The 1999 U.S. EPA NAWQC for the protection of freshwater aquatic life for total ammonia (the “1999 Criteria”), recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the “2013 Criteria”).¹ The 2013 Criteria is an update to U.S. EPA’s 1999 Criteria and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species 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 data set to better represent the species present at the site.*”

The Central Valley Water Board issued a 3 April 2014 *California Water Code section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter to the Central Valley Water Board indicating their participation in the Central Valley Clean Water Association (CVCWA) Freshwater Collaborative Mussel Study. Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan’s narrative toxicity objective. The 1999 Criteria recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that

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

invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Jackson Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. Previous Orders R5-2007-0133-01 and R5-2013-0146-01 included a more stringent instantaneous maximum pH limitation of 8.0 based on a 30 July 2007 request from the Discharger. As discussed in section IV.C.3.c.ix of this Fact Sheet, data collected over the term of Order R5-2013-0146-01 indicates that pH in the effluent was consistently below 8.0. Therefore, this Order retains the more stringent instantaneous maximum pH limitation of 8.0. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.62 mg/L (as N).

A chronic criterion was calculated for each day when paired pH and temperature data were measured using downstream receiving water data for pH and temperature. Rolling 30-day average criteria were calculated from downstream receiving water data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The most stringent 30-day CCC was 2.06 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 2.06 mg/L (as N), the 4-day average concentration that should not be exceeded is 5.15 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 *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) (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 average monthly effluent limitation (AMEL) and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and AWEL for ammonia of 1.9 mg/L and 4.3 mg/L, respectively, based on the NAWQC.
- (d) **Plant Performance and Attainability.** The Facility is designed for provide tertiary treatment and fully nitrify the wastewater. Therefore, the Central Valley Water Board finds that immediate compliance with the ammonia limits 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 sulfur dioxide process to dechlorinate the effluent prior to discharge to Jackson 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 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 the protection of aquatic life.

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

iii. **Chlorodibromomethane**

- (a) **WQO.** The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed. Order R5-2013-0146-01 included effluent limitations for chlorodibromomethane based on the CTR human health criterion.
- (b) **RPA Results.** The maximum effluent concentration (MEC) for chlorodibromomethane was 2.69 µg/L based on 40 samples collected between January 2015 and December 2017. Chlorodibromomethane was not detected in the upstream receiving water based on three samples collected between January 2015 and December 2017. Therefore, chlorodibromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.
- (c) **WQBEL's.** This Order contains a final AMEL and MDEL for chlorodibromomethane of 0.41 µg/L and 0.82 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 chlorodibromomethane shows that the MEC of 2.69 µg/L is greater than the applicable WQBEL's. The Discharger submitted a 24 November 2014 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for chlorodibromomethane and provided additional information to support the request for a revised compliance schedule on 26 May 2017. Therefore, the Discharger is subject to Time Schedule Order (TSO) R5-2018-0037 and any subsequent amendment Order, which provides a compliance schedule to achieve compliance with the final effluent limitations for chlorodibromomethane by 1 June 2019.

iv. **Cyanide**

- (a) **WQO.** The CTR includes a chronic criterion of 5.2 µg/L for cyanide for the protection of freshwater aquatic life. Order R5-2013-0146-01 included effluent limitations for cyanide based on the CTR chronic criterion for the protection of freshwater aquatic life.
- (b) **RPA Results.** The MEC for cyanide was 18 µg/L based on 40 samples collected between January 2015 and December 2017. Cyanide was not

detected in the upstream receiving water based on three samples collected between January 2015 and December 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, NO₃⁻ may reduce NO₂⁻, which interferes. To avoid NO₂⁻ 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*.

In July 2013, 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. Three effluent samples 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.

Table F-11. Cyanide Special Study Results

Sample Date	Preserved Sample (µg/L)	Unpreserved Sample (µg/L)
15 July 2013	3.3	1.3
16 July 2013	3.2	0.5
17 July 2013	4.2	0.3

Following the completion of the special study, the Discharger began to utilize Sierra Foothill Laboratory to perform unpreserved cyanide sample analyses within a 15-minute hold time. However, following May 2014, the Sierra Foothill Laboratory was no longer available to perform the unpreserved cyanide analyses and subsequent samples were preserved using sodium hydroxide. The MEC for unpreserved cyanide samples collected between July 2013 and May 2014 was 3.9 µg/L.

Due to the design of the Facility’s existing chlorine disinfection system, which allows for a relatively short contact time, the Discharger increased chlorine dosage in April 2017 to comply with total coliform effluent limitations. This operational change resulted in an increase in effluent cyanide concentrations. Prior to April 2017, effluent cyanide concentrations typically ranged from 2.0 µg/L to 7.8 µg/L. From April 2017 through December 2017, preserved effluent cyanide concentrations ranged from 5.8 µg/L to 18 µg/L. Additionally, no industrial users that discharge cyanide have been identified within the Facility’s service area.

The unpreserved cyanide sample results were as high as 3.9 µg/L prior to the Discharger increasing the chlorine dosage concentration. Based on the observed increase in preserved cyanide sample results, it is likely that

unpreserved cyanide samples will also be in exceedance of the CTR chronic criterion of 5.2 µg/L following the increase in chlorine dosage. Additionally, there are no industrial dischargers that discharge cyanide-containing compounds to the Discharger's collection system, which further indicates that the treatment process at the Facility is the source of effluent cyanide concentrations. Therefore, Central Valley Water Board staff have determined that cyanide in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion for the protection of freshwater aquatic life.

- (c) **WQBEL's.** This Order contains a final AMEL and MDEL for cyanide of 4.2 µg/L and 8.7 µg/L, respectively, based on the CTR chronic criterion for the protection of freshwater aquatic life.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data for cyanide shows that the MEC of 18 µg/L is greater than the applicable WQBEL's. The Discharger submitted a 24 November 2014 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for cyanide and provided additional information to support the request for a revised compliance schedule on 26 May 2017. Therefore, the Discharger is subject to TSO R5-2018-0037 and any subsequent amendment Order, which provides a compliance schedule to achieve compliance with the final effluent limitations for cyanide by 1 June 2019.

v. **Dichlorobromomethane**

- (a) **WQO.** The CTR includes a criterion of 0.56 µg/L for dichlorobromomethane for the protection of human health for waters from which both water and organisms are consumed. Order R5-2013-0146-01 included effluent limitations for dichlorobromomethane based on the CTR human health criterion.
- (b) **RPA Results.** The MEC for dichlorobromomethane was 8.2 µg/L based on 40 samples collected between January 2015 and December 2017. Dichlorobromomethane was not detected in the upstream receiving water based on three samples collected between January 2015 and December 2017. Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.
- (c) **WQBEL's.** This Order contains a final AMEL and MDEL for dichlorobromomethane of 0.56 µg/L and 0.99 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 8.2 µg/L is greater than the applicable WQBEL's. The Discharger submitted a 24 November 2014 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for dichlorobromomethane and provided additional information to support the request for a revised compliance schedule on 26 May 2017. Therefore, the Discharger is subject to TSO R5-2018-0037 and any subsequent amendment Order, which provides a compliance schedule to achieve compliance with the final effluent limitations for dichlorobromomethane by 1 June 2019.

vi. **Mercury**

- (a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 C.F.R. part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that “...*more stringent mercury limits may be determined and implemented through use of the state’s narrative criterion.*” In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.
- (b) **RPA Results.** The MEC for mercury was 0.00473 µg/L based on 16 samples collected between January 2015 and December 2017. The maximum observed concentration of mercury in the upstream receiving water was 0.00243 µg/L based on three samples collected between January 2015 and December 2017. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The discharge of mercury to surface waters in the Central Valley draining to the Sacramento San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta. A mercury TMDL for Amador Lake may be proposed in the future.
- (c) **WQBEL’s.** Order R5-2013-0146-01 contained a performance-based mass effluent limitation of 0.0016 lbs/month for mercury. The monthly mass effluent limitation for mercury has been converted to an annual mass effluent limitation of 0.019 lbs/year in this Order. This limitation is based on maintaining the mercury loading at the current level until the concern of methylmercury concentrations in the receiving waters are addressed, a TMDL is established, and/or U.S. EPA develops mercury standards that are protective of human health. If U.S. EPA develops new water quality standards for mercury, this Order may be reopened and effluent limitations adjusted.
- (d) **Plant Performance and Attainability.** The annual mass effluent limitation for mercury is based on Facility performance. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

vii. **Nitrate and Nitrite**

- (a) **WQO.** DDW has adopted Primary MCL’s for the protection of human health for nitrite and nitrate that are equal to 1.0 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen. U.S. EPA has developed a Primary MCL and an MCL goal of 1.0 mg/L for nitrite (measured as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

- (b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, if untreated, will be harmful to fish and will violate the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threaten the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia).

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. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for 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.*" With regard to POTW'S, U.S. EPA recommends that, "*POTW's should also be characterized for the possibility of chlorine and ammonia problems.*" (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and

nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving water. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan's narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL's are required.

- (c) **WQBEL's.** This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 21 mg/L, respectively, based on the Basin Plan's narrative chemical constituents objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the MUN beneficial use.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data for nitrate plus nitrite shows that the maximum observed effluent concentration of 17 mg/L is greater than the applicable WQBEL's. The Discharger submitted a 24 November 2014 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for nitrate plus nitrite and provided additional information to support the request for a revised compliance schedule on 26 May 2017. Therefore, the Discharger is subject to TSO R5-2018-0037, which provides a compliance schedule to achieve compliance with the final effluent limitations for nitrate plus nitrite by 1 June 2019.

viii. **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 DDW's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the

effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

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

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

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

The beneficial uses of Jackson Creek include MUN, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. 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 BOD₅, 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 BOD₅ and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD₅ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD₅ and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD₅ 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 BOD₅ and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's and AWEL's for BOD₅ and TSS of 10 mg/L and 15 mg/L, respectively, which are technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD₅ and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the Facility cannot consistently comply with the final total coliform organisms effluent limits. Facility upgrades, including replacing the tertiary filtration system with UV disinfection are being constructed to address the issue. Therefore, the Discharger is subject to TSO R5-2018-0037 and any subsequent amendment Order, which provides a compliance schedule to achieve compliance with the final effluent limitations for total coliform organisms by 1 June 2019.

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

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

In the cover letter submitted with the November 2015 eSMR, the Discharger noted that the pH readings of 6.17 and 6.15 observed on 27 November 2015 and 29 November 2015, respectively, were the result of a chlorinator malfunction. A very high effluent chlorine residual and a resulting high sulfur dioxide dose depressed effluent pH levels. The final repair of the chlorinator was completed on 7 December 2015.

The Facility is a POTW that treats domestic wastewater. Based on continuous monitoring conducted between January 2015 and December 2017, and excluding data that was not representative of the Facility’s normal operating conditions, the maximum reported pH was 7.8 and the minimum was 6.48. Excluding data that was not representative of

normal operating conditions, the Facility exceeded the instantaneous minimum effluent one time from January 2015 through December 2017. 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.** An effluent limitation for pH of 6.5 as an instantaneous minimum is included in this Order based on the protection of the Basin Plan objective for pH. Previous Orders R5-2007-0133-01 and R5-2013-0146-01 included a more stringent instantaneous maximum pH limitation of 8.0 based on a 30 July 2007 request from the Discharger. Data collected over the term of Order R5-2013-0146-01 indicates that effluent pH was consistently below 8.0. Therefore, this Order retains the instantaneous maximum effluent pH limitation of 8.0 from Order R5-2013-0146-01.
- (d) **Plant Performance and Attainability.** Analysis of effluent pH data shows that immediate compliance with the WQBEL's is feasible.

x. **Total Trihalomethanes**

- (a) **WQO.** DDW has adopted a Primary MCL for total trihalomethanes of 80 µg/L, which is protective of the Basin Plan's chemical constituents objective. Total trihalomethanes include bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane. Order R5-2013-0146-01 included effluent limitations for total trihalomethanes based on the Primary MCL.
- (b) **RPA Results.** The MEC for total trihalomethanes was 102 µg/L based on 40 samples collected between January 2015 and December 2017. Total trihalomethanes were not detected in the upstream receiving water based on three samples collected between January 2015 and December 2017. Therefore, total trihalomethanes in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.
- (c) **WQBEL's.** This Order contains a final AMEL and AWEL for total trihalomethanes of 80 µg/L and 120 µg/L, respectively, based on the Primary MCL and the Basin Plan's narrative chemical constituents objective for the protection of the MUN beneficial use.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data for total trihalomethanes shows that the MEC of 102 µg/L is greater than the applicable WQBEL's. The Discharger submitted a 24 November 2014 Infeasibility Analysis documenting the compliance strategy for meeting final effluent limits for total trihalomethanes and provided additional information to support the request for a revised compliance schedule on 26 May 2017. Therefore, the Discharger is subject to TSO R5-2018-0037 and any subsequent amendment Order, which provides a compliance schedule to achieve compliance with the final effluent limitations for total trihalomethanes by 1 June 2019.

4. WQBEL Calculations

- a. This Order includes WQBEL's for ammonia, BOD₅, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, mercury, nitrate plus nitrite, pH, total coliform organisms, total trihalomethanes, 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 (ECA).** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

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

where:

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

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

- c. **Primary and Secondary MCL's.** For non-priority pollutants with Primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the Primary MCL and the AWEL is calculated using an AWEL/AMEL multiplier, where the AWEL multiplier is based on a 98th percentile occurrence probability and the AMEL multiplier is from Table 2 of the SIP.

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

- d. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The ECA's are converted to equivalent LTA's (i.e., LTA_{acute} and LTA_{chronic}) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBEL's are calculated using similar procedures, except that an AWEL is determined utilizing multipliers based on a 98th percentile occurrence probability.
- e. **Human Health Criteria.** For priority pollutants with human health criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP. For non-priority pollutants with human health criteria, WQBEL's are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

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

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

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

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-12. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
pH	standard units	--	--	--	6.5	8.0
Total Suspended Solids	mg/L	10	15	--	--	--
Priority Pollutants						
Chlorodibromomethane	µg/L	0.41	--	0.82	--	--
Cyanide, Total (as CN)	µg/L	4.2	--	8.7	--	--
Dichlorobromomethane	µg/L	0.56	--	0.99	--	--
Mercury, Total Recoverable	lbs/year	0.019 ¹	--	--	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.9	4.3	--	--	--
	lbs/day ²	6.8	15	--	--	--
	lbs/day ³	11	25	--	--	--
Chlorine, Total Residual	mg/L	--	0.011 ⁴	0.019 ⁵	--	--
Nitrate Plus Nitrite	mg/L	10	21	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2 ⁶	23 ⁷	--	240
Total Trihalomethanes ⁸	µg/L	80	120	--	--	--

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

- 1 The total calendar year annual mass discharge of total recoverable mercury shall not exceed 0.019 lbs.
- 2 Based on an average dry weather flow of 0.43 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.
- 3 Based on an average dry weather flow of 0.71 MGD. Effective upon compliance with Special Provision VI.C.6.b.
- 4 Applied as a 4-day average effluent limitation.
- 5 Applied as a 1-hour average effluent limitation.
- 6 Applied as a 7-day median effluent limitation.
- 7 Not to be exceeded more than once in any 30-day period.
- 8 The sum of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.

5. Whole Effluent Toxicity (WET)

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

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

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute WET is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, *“State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).”* Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Therefore, acute toxicity effluent limits are required to ensure compliance with the Basin Plan’s narrative toxicity objective.

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled *“Guidance for NPDES Permit Issuance,”* dated February 1994. In section B.2. *“Toxicity Requirements”* (pgs. 14-15) it states that, *“In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion ‘no toxics in toxic amounts’ applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute*

toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Consistent with Order R5-2013-0146-01, 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) Table F-13, below, includes chronic WET data for testing performed by the Discharger from January 2015 through December 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-13. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
6 January 2015	1	1	1	1	1
17 August 2015	1	1	1	1	1
2 February 2016	1	1	1	1	1
19 September 2016	1	1	1	1	1
27 February 2017	1	1	1	1	1
12 September 2017	1	1	1	1	1

- i. **RPA.** No dilution has been granted for chronic WET. 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 January 2015 and December 2017, the maximum chronic toxicity result was 1 TUc on 12 September 2017 with a percent effect of 21.6 percent. 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.

Mass-based effluent limitations have been established in this Order for ammonia because it is an oxygen-demanding substance. In addition, mass-based limits for mercury have been established in this Order because it is a bioaccumulative pollutant. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

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

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45(d) requires AMEL's and AWEL's for POTW's unless impracticable. For chlorodibromomethane, cyanide, and dichlorobromomethane, AWEL's have been replaced with MDEL's in accordance with section 1.4 of the SIP. Furthermore, for pH, chlorine residual, and total coliform organisms, AWEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

3. Satisfaction of Anti-Backsliding Requirements

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of certain effluent limitations for BOD₅ and TSS. The maximum daily and mass-based effluent limitations for these pollutants have been removed and are thus less stringent than those in Order R5-2013-0146-01. 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.

Jackson Creek is considered an attainment water for BOD₅ and TSS because the receiving water is not listed as impaired on the 303(d) list for these constituents.¹ As

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.

discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the maximum daily and mass-based effluent limits for BOD₅ and TSS from Order R5-2013-0146-01 meets the exception in CWA section 303(d)(4)(B).

- b. **Flow.** Order R5-2013-0146-01 included flow as an effluent limit based on the Facility design flow. In accordance with Order R5-2013-0146-01, compliance with the flow limit was calculated using the average daily flow over three consecutive dry weather months. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

4. Antidegradation Policies

Previous Orders R5-2010-0099 and R5-2013-0146-01 provided antidegradation findings and permitted average dry weather discharge flows up to 0.71 MGD. This Order does not allow for an increase in flow or mass of pollutants to the receiving water from the previously authorized discharge rate of 0.71 MGD. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy. Compliance with these requirements will result in the use of BPTC of the discharge. The impact on existing water quality will be insignificant.

This Order also removes MDEL's and mass-based effluent limitations for BOD₅ and TSS based on 40 C.F.R part 122.45(d) and (f), and as described further in section IV.D.3 of this Fact Sheet. The removal of MDEL's and mass-based effluent limits for BOD₅ and TSS will not result in a decrease in the level of treatment or control, or a reduction in water quality because the WQBEL's for BOD₅ and TSS are based on the technical capability of the tertiary process to meet Title 22, or equivalent, disinfection requirements required to protect the beneficial uses of the receiving water. This is unchanged from the previous permit. Furthermore, both concentration-based AMELs and AWELs remain for BOD₅ and TSS, as well as an average dry weather flow prohibition that limits the amount of flow that can be discharged during dry weather months. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and average dry weather flow by a conversion factor to determine the mass-based effluent limitations. Therefore, the Central Valley Water Board finds that the removal of MDEL's and mass-based effluent limits for BOD₅ and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Water Board Resolution No. 68-16.

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 BOD₅, 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 BOD₅, pH, and TSS, both technology-based effluent limitations and WQBEL's are applicable. The more stringent of these effluent limitations are implemented by this Order. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBEL's for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. 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-14. 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	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.0	BP
Total Suspended Solids	mg/L	10	15	--	--	--	TTC
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Chlorodibromomethane	µg/L	0.41	--	0.82	--	--	CTR
Cyanide, Total (as CN)	µg/L	4.2	--	8.7	--	--	CTR
Dichlorobromomethane	µg/L	0.56	--	0.99	--	--	CTR
Mercury, Total Recoverable	lbs/year	0.019 ²	--	--	--	--	PB
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L	1.9	4.3	--	--	--	NAWQC
	lbs/day ³	6.8	15	--	--	--	
	lbs/day ⁴	11	25	--	--	--	
Chlorine, Total Residual	mg/L	--	0.011 ⁵	0.019 ⁶	--	--	NAWQC
Nitrate Plus Nitrite (as N)	mg/L	10	21	--	--	--	MCL
Total Coliform Organisms	MPN/100 mL	--	2.2 ⁷	23 ⁸	--	240	Title 22
Total Trihalomethanes ⁹	µg/L	80	120	--	--	--	MCL
Acute Toxicity	% survival	--	--	70 ¹⁰ /90 ¹¹	--	--	BP

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

- ¹ TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 C.F.R part 133.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
PB – Based on Facility performance.
NAWQC – Based on U.S. EPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
MCL – Based on the Primary Maximum Contaminant Level.
Title 22 – Based on CA Division of Drinking Water Reclamation Criteria, CCR, division 4, chapter 3.
- ² The total calendar year annual mass discharge of total recoverable mercury shall not exceed 0.019 lbs.
- ³ Based on an average dry weather flow of 0.43 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.
- ⁴ Based on an average dry weather flow of 0.71 MGD. Effective upon compliance with Special Provision VI.C.6.b.
- ⁵ Applied as a 4-day average effluent limitation.
- ⁶ Applied as a 1-hour average effluent limitation.
- ⁷ Applied as a 7-day median effluent limitation.
- ⁸ Not to be exceeded more than once in any 30-day period.
- ⁹ The sum of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
- ¹⁰ 70% minimum of any one bioassay.
- ¹¹ 90% median for any three consecutive bioassays.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

1. CWA section 303(a-c) requires states to adopt water quality standards, including criteria, where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater – Not Applicable

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

Discharger must comply with all Standard Provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42.

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

B. Special Provisions

1. Reopener Provisions

- a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **Whole Effluent Toxicity (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, through participation 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, other than copper. 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. **Disinfection Byproducts.** This reopener allows the Central Valley Water Board to reopen this Order for revision of the effluent limitations and monitoring requirements for chlorodibromomethane, cyanide, dichlorobromomethane, and/or total trihalomethanes if the discharge no longer demonstrates reasonable potential after installation of the UV system.
- e. **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.
- f. **Ultraviolet Light (UV) Disinfection Operating Specifications.** The Discharger is in the process of completing Facility upgrades, which include the conversion to UV disinfection from chlorine disinfection. UV system operating specifications are required to ensure that the UV system is operated to achieve the required pathogen removal. UV disinfection system specifications and monitoring and reporting

requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors, such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. The UV specifications in this Order are based on the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) “*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*” first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI Guidelines). If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation required by Title 22 for disinfected tertiary recycled water, this Order may be reopened to modify the UV specifications, in accordance with Reopener Provision VI.C.1.h.

- g. **20:1 Dilution in Amador Lake.** This prohibition is based on the DDW recommendation that discharges from wastewater treatment plants to municipal water supplies maintain a minimum of 20:1 dilution to ensure the protection of the downstream domestic beneficial use of Jackson Creek and public health. If DDW determines that the 20:1 dilution is no longer necessary, this Order may be reopened to remove Prohibition III.F.
- h. **Facility Re-Rating Study.** The Discharger is in the process of completing Facility upgrades to improve nitrogen removal, which are scheduled to be complete in 2019. The Discharger is also constructing inflow and infiltration improvements to reduce peak wet weather flows into the Facility. If the Discharger conducts a Facility re-rating study that demonstrates the average dry weather design flow capacity has increased, this Order may be reopened to modify Prohibition III.G, as appropriate.

2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity (WET) Requirements.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from January 2015 through December 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.

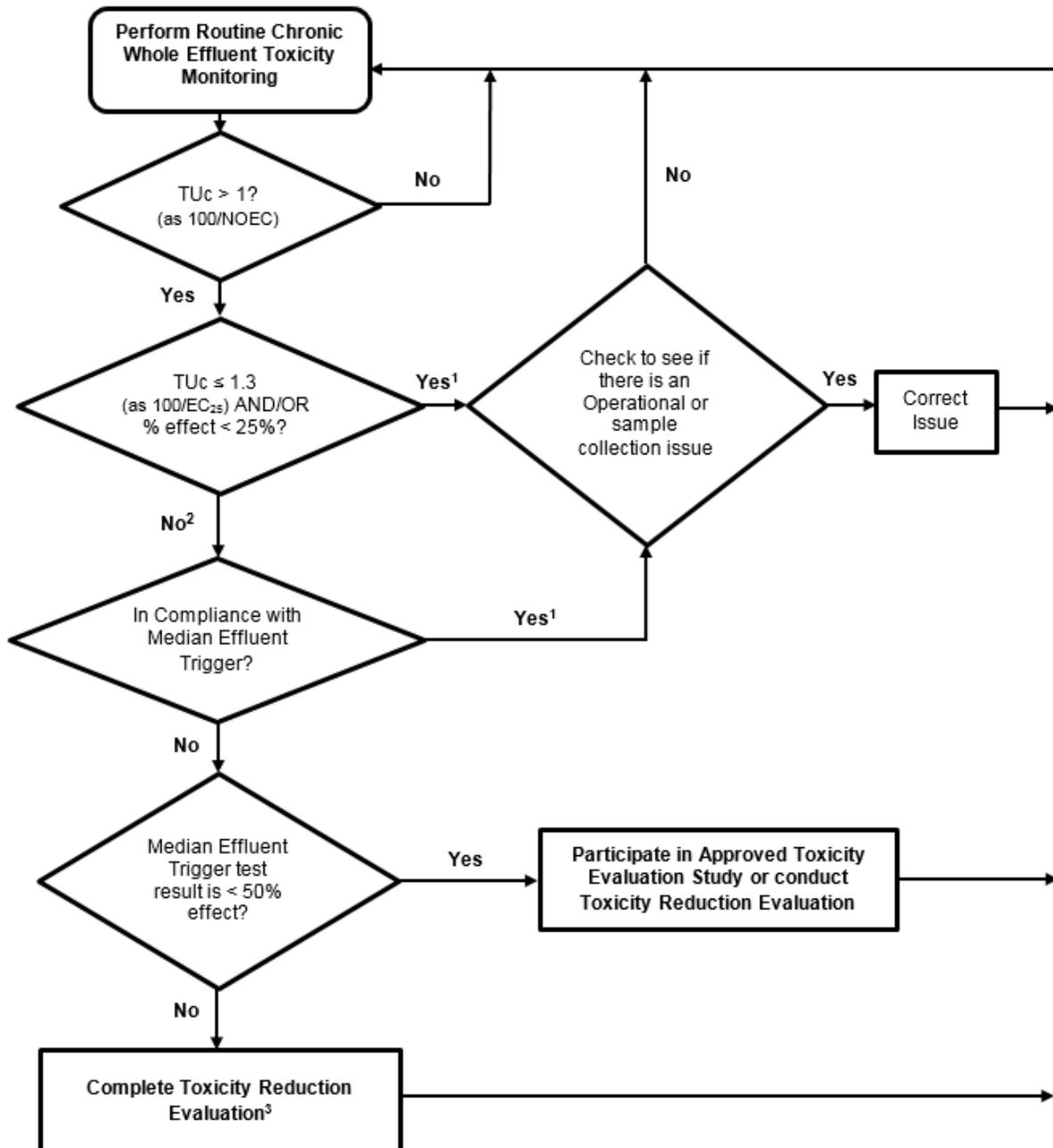
The MRP of this Order requires chronic WET monitoring for demonstration of compliance with the Basin Plan’s narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger, this provision requires the Discharger either participate in an approved TES or conduct a site-specific 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, the Central Valley Clean Water Association (CVCWA), in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar

dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-2), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

**Figure F-2
WET Accelerated Monitoring Flow Chart**



1. The Discharger shall participate in an approved TES if the discharge has exceeded the chronic toxicity monitoring trigger twice or more in the past 12 month period and the cause is not identified and/or addressed.
2. The Discharger may elect to take additional samples to determine the 3 sample median. The samples shall be collected at least 1 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. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required to be maintained in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Jackson Creek.

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 and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure, and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period; and an instantaneous maximum of 10 NTU.
- b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent. To ensure that the proposed UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications that are applicable once UV disinfection is implemented at the Facility. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The NWRI Guidelines include UV operating specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the *Treatment Technology Report for Recycled Water*, December 2009 (or a later version, as applicable) published by DDW. The UV system shall also conform to all requirements and operating specifications of the NWRI Guidelines. A memorandum dated 1 November 2004 issued by DDW to Regional Water Board Executive Officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish a fixed cleaning frequency of lamp sleeves, as well as specifying a minimum delivered UV dose to be maintained by the Discharger (per the NWRI Guidelines).

For granular media filtration, the NWRI Guidelines recommend a minimum hourly average UV dose of 100 mJ/cm². Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm² and a minimum hourly average UV transmittance of 55 percent, per the NWRI Guidelines. If the Discharger conducts a site-specific UV engineering study that demonstrates a lower UV dose meets a Title 22 equivalent virus removal, this Order may be reopened to revise the UV operating specifications accordingly.

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

- a. **Collection System.** 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 and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.

The General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary SSO's that are more extensive, and therefore, more stringent than the requirements under Federal Standard Provisions. The Discharger and public agencies that are discharging wastewater into the Facility's collection system were required to enroll in the General Order by 1 December 2006.

- b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this Order means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the Facility. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities, as specified under 40 C.F.R. part 503. This Order does not regulate off-site use or disposal of biosolids, which are regulated instead under 40 C.F.R. part 503 and administered by U.S. EPA. The Sludge/Biosolids Treatment or Discharge Specifications in this Order implement the California Water Code to ensure sludge/biosolids are properly handled on-site to prevent nuisance, protect public health, and protect groundwater quality.

6. Other Special Provisions

- a. **Title 22, or Equivalent, Disinfection Requirements.** Consistent with Order R5-2013-0146-01, this Order requires the discharge to be oxidized, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent.
- b. **Permitted Average Dry Weather Flow Increase (0.71 MGD).** The Discharger has previously been permitted to discharge up to 0.71 MGD average dry weather flow year-round to Jackson Creek. Facility upgrades are needed to provide the treatment capacity for this flow. 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 – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The 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., BOD₅ and TSS reduction requirements). The monitoring frequencies for flow (continuous), BOD₅ (weekly), and TSS (weekly) have been retained from Order R5-2013-0146-01.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2), effluent monitoring is required for all constituents with effluent limitations or discharge prohibitions. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for flow (continuous), pH (twice per week), chlorodibromomethane (monthly), cyanide (monthly), dichlorobromomethane (monthly), mercury (quarterly), chlorine residual (continuous), hardness (monthly), temperature (twice per week), total dissolved solids (quarterly), and total trihalomethanes (monthly) have been retained from Order R5-2013-0146-01 to determine compliance with effluent limitations and discharge prohibitions, where applicable, and characterize the effluent for these parameters.
3. Order R5-2013-0146-01 required effluent monitoring for BOD₅, TSS, and ammonia twice per week. This Order reduces the monitoring frequency for BOD₅, TSS, and ammonia from twice per week to weekly. The Central Valley Water Board finds that this frequency is sufficient for determining compliance with effluent limitations for BOD₅, TSS, and ammonia established in this Order.
4. Order R5-2013-0146-01 required weekly effluent monitoring for electrical conductivity. This Order reduces the monitoring frequency from weekly to monthly. The Central Valley Water Board finds that this frequency is sufficient for characterizing electrical conductivity within the effluent.
5. Order R5-2013-0146-01 required monthly effluent monitoring for nitrate and nitrite. As discussed in section IV.C.3 of this Fact Sheet, this Order establishes effluent limitations for nitrate plus nitrite as a single parameter. Therefore, this Order removes individual monitoring requirements for nitrate and nitrite and establishes monthly monitoring requirements for nitrate plus nitrite in order to determine compliance with the applicable effluent limitations.
6. Order R5-2013-0146-01 required monitoring for total coliform organisms three times per week at Monitoring Location EFF-001. Once the UV disinfection system becomes operational at the Facility, this Order moves the point of compliance from Monitoring Location EFF-001 to Monitoring Location UVS-001, which is an internal compliance point following the UV disinfection system. The Central Valley Water Board finds that total coliform monitoring at Monitoring Location UVS-001 is sufficient for determining compliance following the disinfection process.
7. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern quarterly during the year 2021. This monitoring frequency has been retained from Order R5-2013-0146-01. See section IX.D of the MRP

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

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

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA (Wat. Code §§ 13370, subd. (c), 13372, 13377). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements (Wat. Code § 13372, subd. (a)). The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. § 136.3(e), Table II). Due to the location of the Facility, it is both legally and factually impossible for the Discharger to comply with section 13176 for constituents with short holding times.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order R5-2013-0146-01, semi-annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Consistent with Order R5-2013-0146-01, semi-annual chronic WET testing is required in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. Receiving water monitoring frequencies and sample types for flow (daily) and hardness (quarterly) at Monitoring Location RSW-001 have been retained from Order R5-2013-0146-01 to characterize the receiving water for these parameters.
- c. The receiving water monitoring frequency and sample type for hardness (quarterly) at Monitoring Location RSW-002 have been retained from Order R5-2013-0146-01 to characterize the receiving water for this parameter.
- d. Order R5-2013-0146-01 required the Discharger to calculate the percent of effluent within Amador Lake annually to determine compliance with the 20:1 dilution requirement in Prohibition III.F. This Order retains the Amador Lake monitoring requirement from Order R5-2013-0146-01.
- e. Order R5-2013-0146-01 required receiving water monitoring for pH, dissolved oxygen, electrical conductivity, temperature, and turbidity twice per week at Monitoring Locations RSW-001 and RSW-002. This Order reduces the monitoring frequencies for these parameters from twice per week to weekly at Monitoring Locations RSW-001 and RSW-002. The Central Valley Water Board finds that this frequency is sufficient for determining compliance with applicable receiving water limitations and characterizing the receiving water for these parameters.
- f. Order R5-2013-0146-01 required quarterly receiving water monitoring for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002. As discussed in section IV.C.3 of this Fact Sheet, the Facility provides tertiary treatment and

utilizes a chlorine disinfection system, with plans to convert to a UV disinfection system, which is designed to achieve Title 22 criteria. Since the Facility is able provide tertiary treatment and achieve Title 22 disinfection, the Central Valley Water Board finds that retaining receiving water monitoring requirements for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002 is not necessary to evaluate the impacts of the effluent on the receiving water. Thus, receiving water monitoring requirements for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002 have not been retained from Order R5-2013-0146-01.

- g. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires upstream receiving water monitoring for priority pollutants and other pollutants of concern at Monitoring Location RSW-001 quarterly during the year 2021, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See section IX.D of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring for compliance with 40 C.F.R. part 503 regulations is not included in this Order since it is a program administered by U.S. EPA's part 503 biosolids program:

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

2. Water Supply Monitoring

- a. Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2013-0146-01, this Order requires annual water supply monitoring for electrical conductivity at Monitoring Location SPL-001.
- b. Order R5-2013-0146-01 required annual water supply monitoring for standard minerals and total dissolved solids. The Central Valley Water Board finds that water supply monitoring for standard minerals and total dissolved solids is not necessary; thus, water supply monitoring requirements for these parameters have not been retained from Order R5-2013-0146-01.

3. Filtration System Monitoring

Filtration system monitoring and reporting are required to determine compliance with the operation specifications for turbidity in Special Provision VI.C.4.a. Order R5-2013-0146-01 required effluent monitoring for turbidity at Monitoring Location EFF-001 while the Facility utilized chlorine disinfection and Monitoring Location UVS-001 following the conversion to UV disinfection. However, due to the proximity of the tertiary filters to the UV disinfection system a single point to measure turbidity could not be established; therefore, this Order maintains the filtration system monitoring at Monitoring Location EFF-001 after the UV disinfection system is operational. Each cloth disk tertiary filter has an individual turbidity meter with alarm set points to maintain compliance with the operation specifications for turbidity in Special Provision VI.C.4.a.

4. UV Disinfection System Monitoring

UV system monitoring and reporting are required once the UV disinfection system becomes operational to ensure that the UV system is operated to adequately inactivate

pathogens in the tertiary treated wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by DDW and the NWRI Guidelines

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

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

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the City of Jackson Wastewater Treatment Plant. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following a Notice of Public Hearing posted at the nearest city hall or county courthouse, the post office nearest to the Facility, and the public entrance of the Facility.

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

http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **18 May 2018**.

C. Public Hearing

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: **31 May 2018**
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and CCR, Title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

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

Or by email at waterqualitypetitions@waterboards.ca.gov

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

E. Information and Copying

The documents supporting this Order and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Brian Taylor at (916) 464-4662.

G.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
1,2-Diphenylhydrazine	µg/L	0.24 (DNQ)	<0.16	0.040	--	--	0.040	0.54	--	--	No ¹
Ammonia Nitrogen, Total (as N)	mg/L	3.7	0.050 (DNQ)	2.06	5.62 ²	2.06 ³	--	--	--	--	Yes
Chloride	mg/L	58	11	230	860 ²	230 ⁴	--	--	--	250	No
Chlorodibromomethane	µg/L	2.69	<0.049	0.41	--	--	0.41	34	--	80 ⁵	Yes
Cyanide, Total (as CN)	µg/L	18	<1.0	5.2	22	5.2	700	220,000	--	--	Yes
Dichlorobromomethane	µg/L	8.2	<0.031	0.56	--	--	0.56	46	--	80 ⁵	Yes
Electrical Conductivity @ 25°C	µmhos/cm	512 ⁶	282 ⁶	900	--	--	--	--	--	900	No
Mercury, Total Recoverable	µg/L	0.00473	0.00243	0.050	--	--	0.050	0.051	--	2.0	Yes ¹
Nitrate, Total (as N)	mg/L	17	1.02	10	--	--	--	--	--	10	Yes ¹
Nitrite, Total (as N)	mg/L	<0.01	<0.01	1.0	--	--	--	--	--	1.0	Yes ¹
Sulfate	mg/L	45 ⁶	35 ⁶	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	318 ⁶	213 ⁶	500	--	--	--	--	--	500	No
Total Trihalomethanes	µg/L	102	<0.50	80	--	--	--	--	--	80 ⁵	Yes

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) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.
- (2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
- (3) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
- (4) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
- (5) Represents the Primary MCL for total trihalomethanes, which includes bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
- (6) Represents the maximum observed annual average concentration for comparison with the MCL.

H.

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
Chlorodibromomethane	µg/L	0.41	<0.049	0.60	--	2.01	1.55	0.41	0.82	--
Dichlorobromomethane	µg/L	0.56	<0.031	0.45	--	1.76	1.41	0.56	0.99	--
Nitrate Nitrogen, Total (as N)	mg/L	10	1.02 ²	1.11	--	2.05 ³	2.05	10	--	21
Total Trihalomethanes	µg/L	80	<0.50	0.41	--	1.52 ³	1.37	80	--	120

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

² Maximum background concentration.

³ Represents the AWEL/AMEL multiplier, which was used to calculate the AWEL for this non-priority pollutant based on the applicable Primary MCL.

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	5.62	2.06	0.050 ⁵	0.60	--	--	0.32	1.80	0.78	1.60 ⁶	1.19 ⁶	2.68	--	1.9	4.3	--
Cyanide, Total (as CN)	µg/L	22	5.2	<1.0	0.65	--	--	0.30	6.57	0.50	2.61	1.60	--	3.35	4.2	--	8.7

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 The LTA and AMEL multiplier corresponding to the 30-day CCC was calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30.