

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CA0085201
ORDER R5-2022-XXXX**

**WASTE DISCHARGE REQUIREMENTS FOR THE
CITY OF ANGELS
WASTEWATER TREATMENT PLANT
CALAVERAS COUNTY**

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

Table 1. Discharger Information

Discharger:	City of Angels
Name of Facility:	Wastewater Treatment Plant
Facility Street Address:	3000 Centennial Road
Facility City, State, Zip:	Angels Camp, CA 95222
Facility County:	Calaveras County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Tertiary Treated Wastewater	38° 03' 20" N	120° 32' 33" W	Angels Creek

Table 3. Administrative Information

This Order was Adopted on:	XX June 2022
This Order shall become effective on:	01 August 2022
This Order shall expire on:	31 July 2027
The Discharger shall file a Report of Waste Discharge (ROWD) as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a NPDES permit no later than:	31 July 2026
The United States Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	Minor discharge

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

PATRICK PULUPA, Executive Officer

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I. FACILITY INFORMATION

Information describing the City of Angels 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 (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDR's in this Order.
- B. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of Public Resources Code.
- C. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.
- D. Provisions and Requirements Implementing State Law.** Not Applicable
- E. Monitoring and Reporting.** 40 C.F.R. section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code section 13383 authorizes the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E. The need for the monitoring reports is discussed in the Fact Sheet.
- F. Notification of Interested Persons.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

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

THEREFORE, IT IS HEREBY ORDERED that Order R5-2017-0063 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 violations of the previous Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.
- D.** Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 22, section 66261.1 et seq., is prohibited.
- E.** The discharge of tertiary treated wastewater at Discharge Point 001 is prohibited except from 15 November through 15 May, when the average daily Angels Creek flows are at least 12 million gallons per day (MGD) and provide a downstream flow ratio of at least 20:1 (Angels Creek flow : effluent) as a daily average.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001

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

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

Table 4. Effluent Limitations

Parameters	Units	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (BOD), 5-day @ 20°Celcius	milligrams per liter (mg/L)	10	15	--
Total Suspended Solids (TSS)	mg/L	10	15	--
Cyanide	µg/L	9.5	--	19
Zinc	µg/L	65	--	130
Ammonia Nitrogen, Total (as N)	mg/L	10	23	--
Nitrate plus Nitrite (as N)	mg/L	10	17	

- b. **pH:**
 - i. 6.5 Standard Units (SU) as an instantaneous minimum.
 - ii. 8.5 SU as an instantaneous maximum.
- c. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 85 percent.
- d. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. 70%, minimum for any one bioassay; and
 - ii. 90%, median for any three consecutive bioassays.
- e. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed the following with compliance measured at UVS-001:
 - i. 2.2 most probable number per 100 milliliter (MPN/100 mL), as a 7-day median.
 - ii. 23 MPN/100 mL, more than once in any 30-day period; and
 - iii. 240 MPN/100 mL, at any time.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

Land discharge specifications for the Facility are included in WDR Order 98-110.

C. Recycling Specifications – Not Applicable

Recycling specifications for the Facility are included in WDR Order 98-110.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Angels Creek:

1. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
2. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
3. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
4. **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.
5. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
6. **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.
7. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
8. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the

accuracy of analytical methods approved by U.S. EPA or the Executive Officer.

- d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR section 131.12.);
- e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
- f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCL's) set forth in CCR, Title 22, division 4, chapter 15; nor
- g. Thiobencarb to be present in excess of 1.0 µg/L.

9. Radioactivity:

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

10. Salinity. Salinity (chloride, electrical conductivity, TDS, etc.) objectives see Section 3.1.14.

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° Fahrenheit. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

17. **Turbidity.**

- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
- b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
- c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
- d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
- e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations – Not Applicable

Groundwater limitations for the Facility are included in WDR Order 98-110.

VI. PROVISIONS

A. Standard Provisions

- 1. The Discharger shall comply with all Standard Provisions included in Attachment D.
- 2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:
 - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
 - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - i. violation of any term or condition contained in this Order;
 - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

- iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
- iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

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

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

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

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

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

- ii. Controls any pollutant limited in the Order.

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

- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by U.S. EPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
 - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
 - ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
 - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and U.S. EPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms

and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

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

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

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

- k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in

California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
- o. This Order may be reopened to transfer ownership of control of this Order. The succeeding owner or operator must apply in writing 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. .
- p. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit shall continue in force and effect until the permit is reissued or the Regional Water Board rescinds the permit.

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 CFR section 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments

thereto, this permit may be reopened and modified in accordance with the new or amended standards.

- ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, a revised acute toxicity effluent limitation, and/or an effluent limitation for a specific toxicant identified in a TRE. Additionally, upon approval of the SIP's toxicity control provisions from U.S. EPA and State of California Office of Administrative Law, this Order may be reopened to implement the new provisions.
- d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- e. **Ultraviolet (UV) Disinfection Operating Specifications.** The UV operating specifications in this Order are based on the UV guidelines developed by the National Water Research Institute and American Water Works Association Research Foundation titled, "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse." 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.
- f. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves

forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the [Central Valley Salinity Alternatives for Long-Term Sustainability \(CV-SALTS\) web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/):
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Toxicity Reduction Evaluation Requirements.** This Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exceeds the chronic toxicity thresholds defined in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE Work Plan and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity.
 - i. **Numeric Toxicity Monitoring Trigger.** The numeric Toxicity Unit (TUc) monitoring trigger is 16 TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to initiate additional actions to evaluate effluent toxicity as specified in subsection iii, below.
 - ii. **Chronic Toxicity Monitoring Trigger Exceeded.** When a chronic whole effluent toxicity 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 16 TUc (as 100/EC₂₅) AND/OR the percent effect is less than 25 percent at 6.25 percent effluent, check for any operation or sample collection issues and return to routine chronic toxicity monitoring. Otherwise, proceed to step (b).
 - (b) **Evaluate 6-week Median.** The Discharger may take two additional samples within 6 weeks of the initial routine sampling event exceeding the chronic toxicity monitoring trigger to evaluate compliance using a 6-week median. If the 6-week median is greater than 16 TUc (as 100/EC₂₅) and the percent effect is greater than 25 percent at 6.25 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. See Compliance Determination Section VII.L for procedures for calculating 6-week median.

- (c) **Toxicity Source Easily Identified.** If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall resume routine chronic toxicity monitoring; If the source of toxicity is not easily identified the Discharger shall conduct a site-specific TRE as described in the following subsection.
- (d) **Toxicity Reduction Evaluation.** The Discharger shall initiate a TRE as follows:
 - (i) **Within thirty (30) days** of exceeding the chronic toxicity monitoring trigger, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
 - Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
 - Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
 - A schedule for these actions.

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.

The Discharger submitted a Notice of Intent (NOI) to comply with the Salt Control Program and selected the Alternative Permitting Approach. Accordingly, the Discharger shall participate in the CV-SALTS Prioritization and Optimization (P&O) Study. Furthermore, an evaluation of the effectiveness of the salinity evaluation and minimization plan shall be submitted with the ROWD. The evaluation shall include, at minimum, the calendar annual average concentrations of effluent electrical conductivity during the term of the Order. If the average electrical conductivity concentration for any calendar year exceeds a performance-based **trigger of 925 µmhos/cm**, the Discharger shall evaluate possible sources of salinity contributing to the exceedance of the trigger and update the salinity evaluation and minimization plan to include a plan of action to control salinity.

4. Construction, Operation and Maintenance Specifications

- a. **Treatment Plant Operating Requirements.** Public contact with wastewater, in and around the outfall, shall be discouraged through such means as fences, signs and other acceptable alternatives.
- b. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to provide adequate disinfection of the wastewater, the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed:
 - i. 2 NTU as a daily average;
 - ii. 5 NTU more than 5 percent of the time within a 24-hour period; and
 - iii. 10 NTU, at any time.
- c. **Ultraviolet (UV) Disinfection System Operating Specifications.** 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/cm²).
 - ii. **UV Transmittance.** The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at UVS-001 shall not fall below 55 percent.
 - iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.
 - iv. The 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 (POTWs) – Not Applicable

6. Other Special Provisions

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

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

- A. **BOD₅ and TSS Effluent Limitations (Section IV.A.1.a and IV.A.1.c).** 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.c 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 Coliform Organisms Effluent Limitations (Section IV.A.1.k).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.
- C. **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. sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
 - b. sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).
 3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, 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.

D. Dissolved Oxygen Receiving Water Limitation (Section V.A.5.a-c). The Facility provides a high level of treatment including tertiary filtration and nitrification, which results in minimal dissolved oxygen impacts in the receiving water. Weekly receiving water monitoring is required in the Monitoring and Reporting Program (Attachment E) and is sufficient to evaluate the impacts of the discharge and compliance with this Order. weekly receiving water monitoring data, measured at monitoring locations RSW-001 and RSW-002, will be used to determine compliance with part “c” of the dissolved oxygen receiving water limitation to ensure the discharge does not cause the dissolved oxygen concentrations in the Angels 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”.

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

Where the median chronic toxicity units exceed 16 TUc (as 100/NOEC) for any endpoint, the Discharger will be deemed out of compliance with the chronic toxicity

effluent trigger if the median percent effect at 6.25 percent effluent for the same endpoint also exceeds 25 percent. The percent effect used to evaluate compliance with the chronic toxicity effluent limitation shall be based on the chronic toxicity bioassay result(s) from the sample(s) used to establish the median TUc result. If the median TUc is based on two equal chronic toxicity bioassay results, the percent effect of the sample with the greatest percent effect shall be used to evaluate compliance with the chronic toxicity effluent limitation.

ATTACHMENT A – DEFINITIONS

1Q10

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

7Q10

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

Acute Aquatic Toxicity Test

A test to determine an adverse effect (usually lethality) on a group of aquatic test organisms during a short-term exposure (e.g., 24, 48, or 96 hours).

Alternative Hypothesis

A statement used to propose a statistically significant relationship in a set of given observations. Under the TST approach, when the Null Hypothesis is rejected, the Alternative Hypothesis is accepted in its place, indicating a relationship between variables and an acceptable level of toxicity.

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:

$$\text{Arithmetic mean} = \mu = \Sigma x / n$$

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.

Chronic Aquatic Toxicity Test

A test to determine an adverse effect (sub-lethal or lethal) on a group of aquatic test organisms during an exposure of duration long enough to assess sub-lethal effects.

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

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

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

Detected, but Not Quantified (DNQ)

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

Dilution Credit

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

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay,

Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

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. A measured response of a receptor to a stressor. An endpoint can be measured in a toxicity test or field survey.

Estimated Chemical Concentration

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

Estuaries

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

Inland Surface Waters

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

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Instream Waste Concentration (IWC)

The concentration of effluent in the receiving water after mixing.

Maximum Daily Effluent Limitation (MDEL)

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

Median

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

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

Method Detection Limit (MDL)

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

Minimum Level (ML)

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

Mixing Zone

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

Not Detected (ND)

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

Null Hypothesis

A statement used in statistical testing that has been put forward either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved.

Ocean Waters

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

Percent Effect

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

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce

all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention

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

Response

A measured biological effect (e.g., survival, reproduction, growth) as a result of exposure to a stimulus.

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.

Species Sensitivity Screening

An analysis to determine the single most sensitive species from an array of test species to be used in a single species laboratory test series.

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.

Statewide Toxicity Provisions

Refers to Section III.B and Section IV.B of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

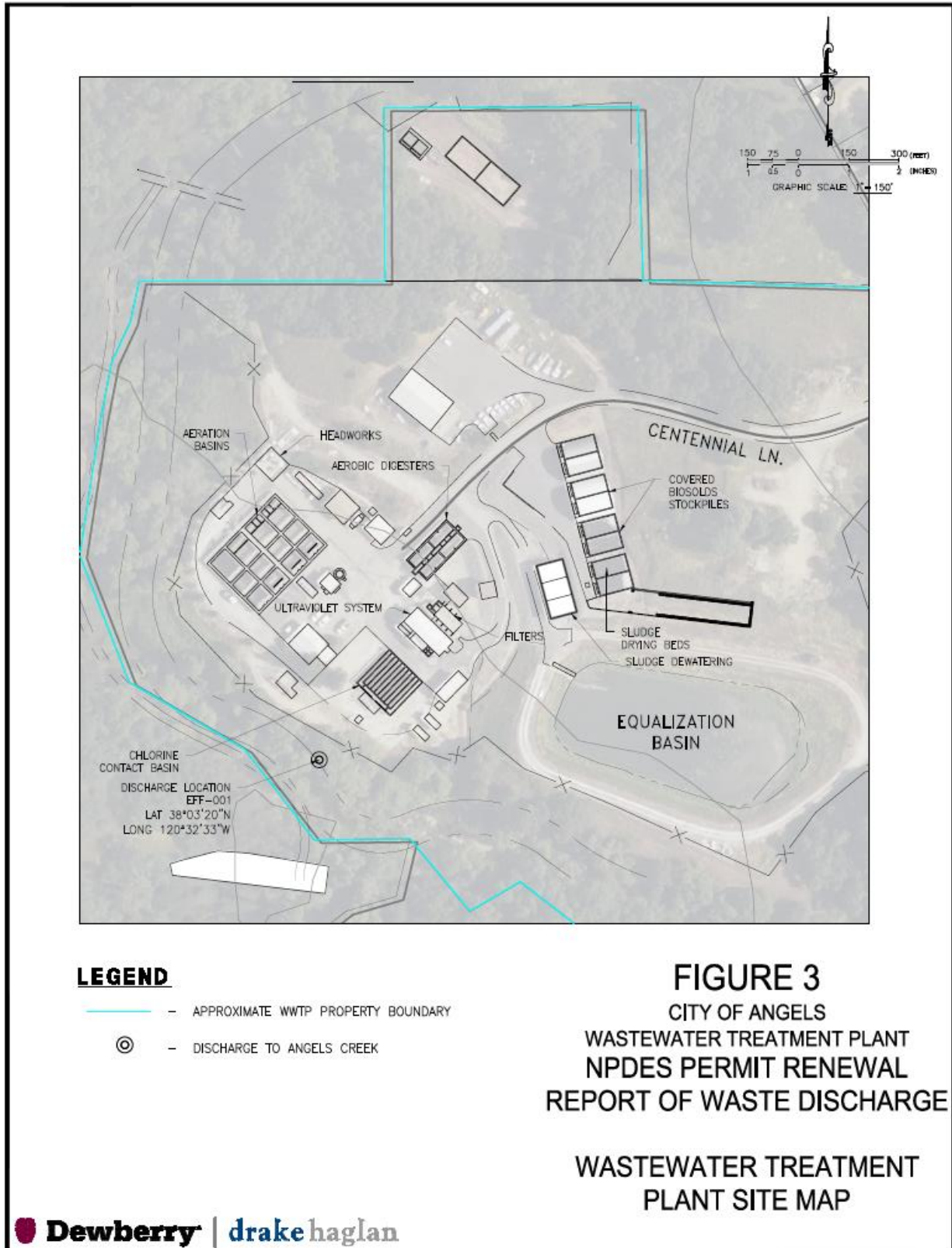
Test of Significant Toxicity (TST)

A statistical approach used to analyze aquatic toxicity test data, as described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 (Chronic Freshwater and East Coast Methods) and Appendix B, Table B-1.

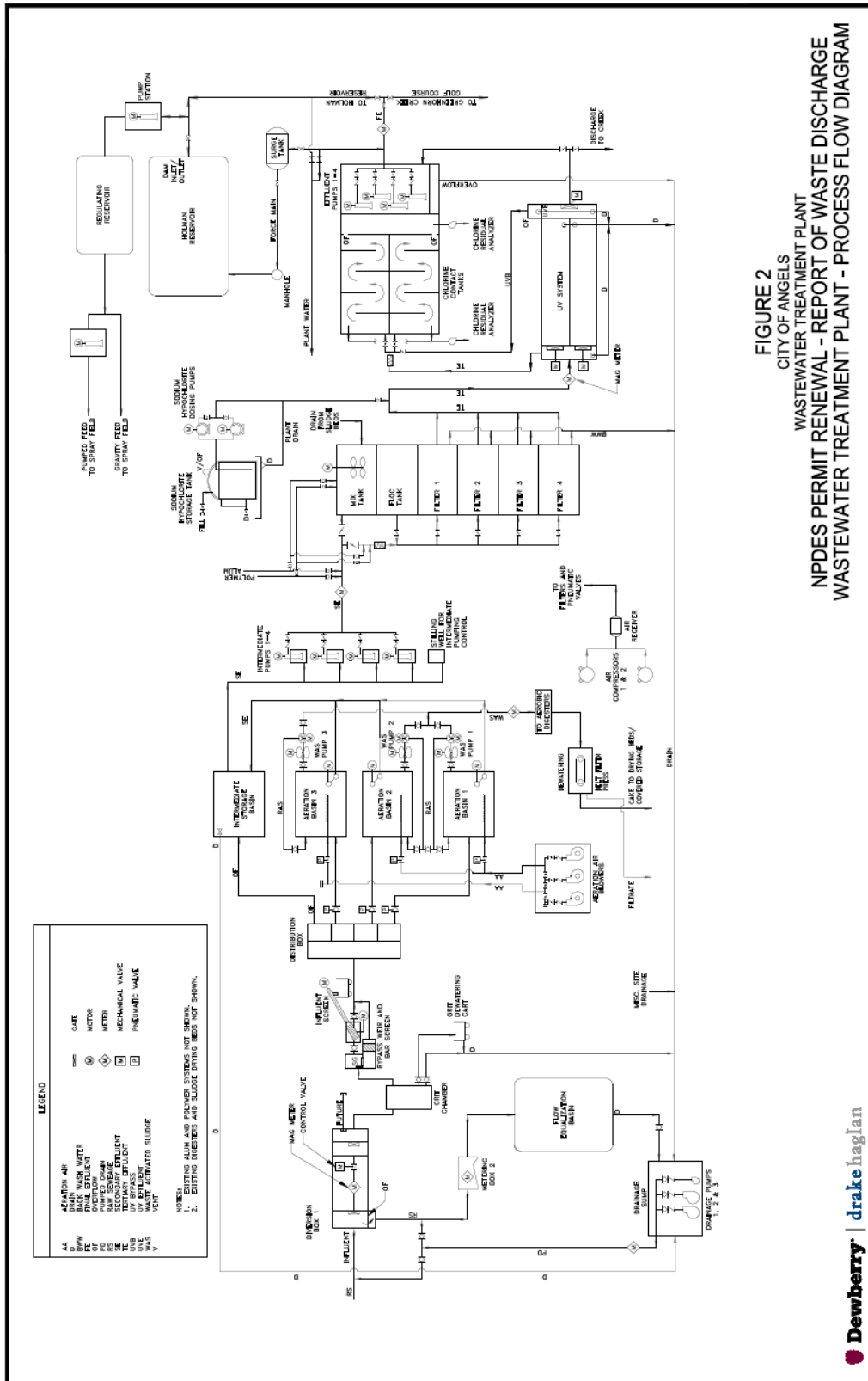
Toxicity Reduction Evaluation (TRE)

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

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply:

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

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

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. section 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. section 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not

subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. section 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. section 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. section 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. section 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. section 122.41(m)(4)(i)(C).)
4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. section 122.41(m)(4)(ii).)
5. **Notice**
 - a. **Anticipated bypass.** If the Discharger knows in advance of the need for a bypass, it shall submit prior notice if possible, at least 10 days before the date of the bypass. The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board’s [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(i).)
 - b. **Unanticipated bypass.** The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Central Valley Water Board. As of 21 December 2023, all notices shall be submitted electronically to the initial recipient (State Water Board’s [California Integrated Water Quality System \(CIWQS\) Program website](http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), defined in

Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. Part 3, section 122.22, and 40 C.F.R. Part 127. (40 C.F.R. section 122.41(m)(3)(ii).)

H. Upset

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. section 122.41(j)(1).)
- B.** Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. Part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when the method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. chapter 1, subchapter N or O for the measured pollutant or pollutant parameter, or when:
1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and:
 - a. The method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter, or;
 - b. The method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge;

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

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. section 122.41(j)(2).)
- B.** Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements (40 C.F.R. section 122.41(j)(3)(i));
 2. The individual(s) who performed the sampling or measurements (40 C.F.R. section 122.41(j)(3)(ii));
 3. The date(s) analyses were performed (40 C.F.R. section 122.41(j)(3)(iii));
 4. The individual(s) who performed the analyses (40 C.F.R. section 122.41(j)(3)(iv));
 5. The analytical techniques or methods used (40 C.F.R. section 122.41(j)(3)(v));
and
 6. The results of such analyses. (40 C.F.R. section 122.41(j)(3)(vi).)
- C.** Claims of confidentiality for the following information will be denied (40 C.F.R. section 122.7(b)):
1. The name and address of any permit applicant or Discharger (40 C.F.R. section 122.7(b)(1)); and
 2. Permit applications and attachments, permits and effluent data. (40 C.F.R. section 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. section 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. section 122.22(a)(3).)
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. section 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. section 122.22(b)(2)); and
 - c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. section 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted

to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. section 122.22(c).)

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

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

6. Any person providing the electronic signature for such documents described in Standard Provision – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all of the relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R section 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. section 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of 21 December 2016, all reports and forms must be submitted electronically to the initial recipient, defined in Standard Provisions – Reporting V.J, and comply with 40 C.F.R. part 3, section 122.22, and 40 C.F.R. part 127. (40 C.F.R. section 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. section 122.41(l)(4)(ii).)

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

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

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

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

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. section 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. section 122.41(l)(1)(ii).)
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. section 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the appropriate initial recipient, as determined by U.S. EPA, and as defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial

recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. section 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

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

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

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. section 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. section 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. section 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. section 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code section 13383 authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring and reporting requirements that implement federal and California requirements.

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), in accordance with the provision of Water Code section 13176. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event an accredited laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a non-accredited laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

- E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F. Laboratory analytical methods shall be sufficiently sensitive in accordance with the Sufficiently Sensitive Methods Rule (SSM Rule) specified under 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). A U.S. EPA-approved analytical method is sufficiently sensitive for a pollutant/parameter where:
 1. The method minimum level (ML) is at or below the applicable water quality objective for the receiving water, or;
 2. The method ML is above the applicable water quality objective for the receiving water but the amount of the pollutant/parameter in the discharge is high enough that the method detects and quantifies the level of the pollutant/parameter, or;
 3. the method ML is above the applicable water quality objective for the receiving water, but the ML is the lowest of the 40 C.F.R. 136 U.S. EPA-approved analytical methods for the pollutant/parameter.
- G. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- H. 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.

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 at the plant headworks where a representative sample of the influent into the Facility can be collected prior to entering into treatment processes.
001	EFF-001	A location where a representative sample of tertiary treated effluent can be obtained immediately prior to entering Angels Creek
--	RSW-001	50 feet upstream of Discharge Point 001 in Angels Creek.
--	RSW-002	In Angels Creek at a location downstream of Discharge Point 001 but prior to the confluence with Six Mile Creek.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	FIL-001	A location where a representative sample of wastewater can be collected immediately before entering the UV disinfection system.
--	UVS-001	A location where a representative sample of wastewater can be collected immediately downstream of the UV disinfection system.

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

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 from 15 November through 15 May in accordance with Table E-2 and the testing requirements described in section III.A.2 below:

Table E-2. Influent Monitoring

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

2. **Table E-2 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-2:
 - a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. **Grab Samples.** All grab samples shall not be collected at the same time each day to get a complete representation of variations in the influent.
 - c. **24-Hour Composite Samples.** All composite samples shall be collected from a 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

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

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous
Dilution Ratio	--	Calculate	1/Day
Holman Reservoir Volume Remaining	MG	Calculate	1/Day
Biochemical Oxygen Demand (BOD) 5-day @ 20°Celcius	mg/L	24-hour Composite	1/Week
BOD	% removal	Calculate	1/Month
Total Suspended Solids (TSS)	mg/L	24-hour Composite	1/Week
TSS	% removal	Calculate	1/Month
pH	standard units	Grab	1/Day
Cyanide, Total (as CN)	ug/L	24-hour Composite	1/Month
Lead, Total	ug/L	24-hour Composite	1/Month
Zinc, Total	ug/L	24-hour Composite	1/Month
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week
Dissolved Oxygen	mg/L	Grab	1/Week
Electrical Conductivity @ 25°Celcius	µmhos/cm	24-hour Composite	1/Month
Hardness, Total (as CaCO3)	mg/L	24-hour Composite	1/Month
Dissolved Organic Carbon (DOC)	mg/L	24-hour Composite	1/Month
Nitrate plus Nitrite, Total (as N)	mg/L	Grab	1/Month
Temperature	°F	Grab	1/Week

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

- a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136 or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
- b. **24-hour composite samples** shall be collected from a 24-hour flow proportional composite.
- c. **Handheld Field Meter.** A handheld field meter may be used for dissolved oxygen, **temperature**, and **pH**, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- d. **Temperature** and **pH** shall be recorded at the time of **ammonia** sample collection.
- e. **Ammonia.** Ammonia samples shall be collected concurrently with whole effluent toxicity monitoring.
- h. **Hardness** samples shall be collected concurrently with metals samples.
- i. **Priority Pollutants.** For all priority pollutant constituents listed in Table E-3 (cyanide, lead, and zinc) the 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 (State Implementation Policy or SIP) and the SSM Rule specified under 40 C.F.R. sections 122.21(e)(3) and 122.44(i)(1)(iv).
- J. **Dissolved Organic Carbon** samples shall be collected concurrently with hardness and pH samples.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

- A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the acute toxicity testing requirement:
 - 1. **Monitoring Frequency** – The Discharger shall perform annual acute toxicity testing when discharging to Angels Creek, concurrent with effluent ammonia sampling.
 - 2. **Sample Types** – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001.

3. **Test Species** – Test species shall be 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 chronic toxicity testing requirements:

1. **Monitoring Frequency** – The Discharger shall perform annual three species chronic toxicity testing when discharging to Angels Creek.
2. **Sample Types** – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.
3. **Sample Volumes** – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. **Test Species** – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - c. The green alga, *Selenastrum capricornutum* (growth test)
5. **Methods** – The presence of chronic toxicity shall be estimated as specified in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002.
6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

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

Table E-4. Chronic Toxicity Testing Dilution Series

Samples	Dilution%	Dilution%	Dilution%	Dilution%	Dilution%	Controls
% Effluent	50	25	12.5	6.25	3.125	0
% Control Water	50	75	87.5	93.75	96.875	100

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
- a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
 - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in the Method Manual.
- C. WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the chronic toxicity monitoring trigger, or an exceedance of the acute toxicity effluent limitation.
- D. WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory’s complete report provided to the Discharger and shall be in accordance with the appropriate “Report Preparation and Test Review” sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:
- 1. **Test of Significance Toxicity (TST).** For both acute and chronic toxicity testing, the toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self-monitoring report, and shall contain, at minimum:
 - a. The valid toxicity test results for the Test of Significance Toxicity (TST) statistical approach, reported as “Pass” or “Fail” and “Percent Effect” at the Instream Waste Concentration (IWC) for the discharge, which shall be at 100 percent effluent for acute toxicity testing and 6.25 percent for chronic toxicity testing.

- b. The statistical analysis used in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R10-003, 2010) Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.
 - c. Statistical program (e.g., TST calculator, CETIS, etc.) output results, including graphical plots, for each toxicity test.
2. **Chronic WET Reporting.** Routing and compliance chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self-monitoring report, and shall contain, at minimum:
- a. The results expressed in TU_c, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
 - b. The statistical methods used to calculate endpoints;
 - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
 - d. The dates of sample collection and initiation of each toxicity test; and
 - e. The results compared to the numeric toxicity monitoring trigger.
- Additionally, the quarterly self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TU_c, and organized by test species, type of test (survival, growth or reproduction), and monitoring type, i.e., routine, compliance, TES, or TRE monitoring.
3. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
4. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.
5. **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

Land discharge monitoring requirements for the Facility are included in MRP Order 98-110.

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

Recycling monitoring requirements for the Facility are included in MRP Order 98-098.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Location RSW-001 and RSW-002

1. When discharging to Angels Creek, the Discharger shall monitor Angels Creek at RSW-001 and RSW-002 in accordance with Table E-5 and the testing requirements described in section A.2 below:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Angels Creek Flow	MGD	Meter	1/Day
pH	standard units	Grab	1/Week
Dissolved Oxygen	mg/L	Grab	1/Week
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month
Hardness (as CaCO ₃)	mg/L	Grab	1/Month
Temperature	°C	Grab	1/Week
Turbidity	NTU	Grab	1/Week

2. **Table E-5 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-5:
 - a. **Flow monitoring** may be obtained from the Utica Water and Power Authority flow gage located 50 feet downstream of RSW-001.
 - b. **pH, electrical conductivity, temperature, dissolved oxygen, and turbidity.** A hand-held field meter may be used, provided the meter utilized a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer’s instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

- c. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by RSW-001 and RSW-002 when discharging to the Angels Creek. Attention shall be given to the presence of:
 - a. Floating or suspended matter;
 - b. Discoloration;
 - c. Bottom deposits;
 - d. Aquatic life;
 - e. Visible films, sheens, or coatings;
 - f. Fungi, slimes, or objectionable growths; and
 - g. Potential nuisance conditions.

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

C. Groundwater Monitoring– Not Applicable

Groundwater monitoring requirements for the Facility are included in MRP Order 98-110.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids – Not Applicable

B. Water Supply Monitoring – Not Applicable

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

1. **Monitoring Locations UVS-001 and FIL-001.** When discharging to Angels Creek, the Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Location UVS-001 when discharging to Angels Creek in accordance with Table E-6 and the testing requirements described in section IX.C.2 below:

Table E-6. Filtration System and UV Disinfection System Monitoring Requirements

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

2. **Table E-6 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-6:
- a. **Applicable to all parameters.** Parameters shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board. In addition, if requested by the Discharger, the sample type may be modified by the Executive Officer to another 40 CFR part 136 allowed sample type.
 - b. **Continuous analyzers.** The Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results.
 - c. **Turbidity.** Report daily average and maximum turbidity.
 - d. **UV Dose.** Report daily minimum hourly average UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose will be averaged based on the actual operation time.

D. Effluent and Receiving Water Characterization

1. Monitoring Frequency

- a. **Effluent Sampling.** Samples shall be collected from the effluent (Monitoring Location EFF-001) monthly between **December 2023 and March 2024**, for a total of four samples. **Monthly monitoring shall be conducted regardless of whether a discharge to Angels Creek is occurring**, and the results of such monitoring shall be submitted to the Central Valley.
- b. **Receiving Water Sampling.** Samples shall be collected from the upstream receiving water (Monitoring Location RSW-001) monthly between **December 2023 and March 2024**, for a total of four samples. **Monthly monitoring shall be conducted regardless of whether a discharge to Angels Creek is occurring**, and the results of such monitoring shall be submitted to the Central Valley.

Constituents shall be collected and analyzed consistent with the Discharger's Analytical Methods Report (MRP, X.D.2) using sufficiently sensitive analytical methods and Reporting Levels (RLs) per the SSM Rule specified in 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv). The "Reporting Level" is synonymous with the "Method Minimum Level" described in the SSM Rule. The results of the monitoring shall be submitted to the Central Valley Water Board with the quarterly self-monitoring reports. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

- 2. **Analytical Methods Report Certification.** Prior to beginning the Effluent and Receiving Water Characterization monitoring, the Discharger shall provide a certification acknowledging the scheduled start date of the Effluent and Receiving Water Characterization monitoring and confirming that samples will be collected and analyzed as described in the previously submitted Analytical Methods Report. If there are changes to the previously submitted Analytical Methods Report, the Discharger shall outline those changes. A one-page certification form will be provided by Central Valley Water Board staff with the permit's Notice of Adoption that the Discharger can use to satisfy this requirement. The certification form shall be submitted electronically via CIWQS submittal by the due date in the Technical Reports Table.
- 3. The Discharger shall conduct effluent and receiving water characterization monitoring in accordance with Table E-7 and the testing requirements described in section IX.E.4 below.

Table E-7. Effluent and Receiving Water Characterization Monitoring

VOLATILE ORGANICS

CTR Number	Volatile Organic Parameters	CAS Number	Units	Effluent Sample Type
25	2-Chloroethyl vinyl Ether	110-75-8	µg/L	Grab
17	Acrolein	107-02-8	µg/L	Grab
18	Acrylonitrile	107-13-1	µg/L	Grab
19	Benzene	71-43-2	µg/L	Grab
20	Bromoform	75-25-2	µg/L	Grab
21	Carbon Tetrachloride	56-23-5	µg/L	Grab
22	Chlorobenzene	108-90-7	µg/L	Grab
24	Chloroethane	75-00-3	µg/L	Grab
26	Chloroform	67-66-3	µg/L	Grab
35	Methyl Chloride	74-87-3	µg/L	Grab
23	Dibromochloromethane	124-48-1	µg/L	Grab
27	Dichlorobromomethane	75-27-4	µg/L	Grab
36	Methylene Chloride	75-09-2	µg/L	Grab
33	Ethylbenzene	100-41-4	µg/L	Grab
89	Hexachlorobutadiene	87-68-3	µg/L	Grab
34	Methyl Bromide (Bromomethane)	74-83-9	µg/L	Grab
94	Naphthalene	91-20-3	µg/L	Grab
38	Tetrachloroethylene (PCE)	127-18-4	µg/L	Grab
39	Toluene	108-88-3	µg/L	Grab
40	trans-1,2-Dichloroethylene	156-60-5	µg/L	Grab
43	Trichloroethylene (TCE)	79-01-6	µg/L	Grab
44	Vinyl Chloride	75-01-4	µg/L	Grab
21	Methyl-tert-butyl ether (MTBE)	1634-04-4	µg/L	Grab
41	1,1,1-Trichloroethane	71-55-6	µg/L	Grab
42	1,1,2-Trichloroethane	79-00-5	µg/L	Grab
28	1,1-Dichloroethane	75-34-3	µg/L	Grab
30	1,1-Dichloroethylene (DCE)	75-35-4	µg/L	Grab
31	1,2-Dichloropropane	78-87-5	µg/L	Grab
32	1,3-Dichloropropylene	542-75-6	µg/L	Grab
37	1,1,2,2-Tetrachloroethane	79-34-5	µg/L	Grab
101	1,2,4-Trichlorobenzene	120-82-1	µg/L	Grab
29	1,2-Dichloroethane	107-06-2	µg/L	Grab
75	1,2-Dichlorobenzene	95-50-1	µg/L	Grab
76	1,3-Dichlorobenzene	541-73-1	µg/L	Grab
77	1,4-Dichlorobenzene	106-46-7	µg/L	Grab

SEMI-VOLATILE ORGANICS

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
60	Benzo(a)Anthracene	56-55-3	µg/L	Grab
85	1,2-Diphenylhydrazine	122-66-7	µg/L	Grab
45	2-Chlorophenol	95-57-8	µg/L	Grab
46	2,4-Dichlorophenol	120-83-2	µg/L	Grab
47	2,4-Dimethylphenol	105-67-9	µg/L	Grab
49	2,4-Dinitrophenol	51-28-5	µg/L	Grab
82	2,4-Dinitrotoluene	121-14-2	µg/L	Grab
55	2,4,6-Trichlorophenol	88-06-2	µg/L	Grab
83	2,6-Dinitrotoluene	606-20-2	µg/L	Grab
50	2-Nitrophenol	88-75-5	µg/L	Grab
71	2-Chloronaphthalene	91-58-7	µg/L	Grab
78	3,3-Dichlorobenzidine	91-94-1	µg/L	Grab
62	Benzo(b)Fluoranthene	205-99-2	µg/L	Grab
52	4-Chloro-3-methylphenol	59-50-7	µg/L	Grab
48	2-Methyl-4,6-Dinitrophenol	534-52-1	µg/L	Grab
51	4-Nitrophenol	100-02-7	µg/L	Grab
69	4-Bromophenyl Phenyl Ether	101-55-3	µg/L	Grab
72	4-Chlorophenyl Phenyl Ether	7005-72-3	µg/L	Grab
56	Acenaphthene	83-32-9	µg/L	Grab
57	Acenaphthylene	208-96-8	µg/L	Grab
58	Anthracene	120-12-7	µg/L	Grab
59	Benzidine	92-87-5	µg/L	Grab
61	Benzo(a)Pyrene	50-32-8	µg/L	Grab
63	Benzo(ghi)Perylene	191-24-2	µg/L	Grab
64	Benzo(k)Fluoranthene	207-08-9	µg/L	Grab
65	Bis (2-Chloroethoxy) Methane	111-91-1	µg/L	Grab
66	Bis (2-Chloroethyl) Ether	111-44-4	µg/L	Grab
67	Bis (2-Chloroisopropyl) Ether	108-60-1	µg/L	Grab
68	Bis(2-Ethylhexyl) Phthalate	117-81-7	µg/L	Grab
70	Butylbenzyl Phthalate	85-68-7	µg/L	Grab
73	Chrysene	218-01-9	µg/L	Grab
81	Di-n-butyl Phthalate	84-74-2	µg/L	Grab
84	Di-n-Octyl Phthalate	117-84-0	µg/L	Grab
74	Dibenzo(a,h)anthracene	53-70-3	µg/L	Grab
79	Diethyl Phthalate	84-66-2	µg/L	Grab
80	Dimethyl Phthalate	131-11-3	µg/L	Grab
86	Fluoranthene	206-44-0	µg/L	Grab
87	Fluorene	86-73-7	µg/L	Grab
88	Hexachlorobenzene	118-74-1	µg/L	Grab
90	Hexachlorocyclopentadiene	77-47-4	µg/L	Grab
91	Hexachloroethane	67-72-1	µg/L	Grab

CTR Number	Semi-Organic Volatile Parameters	CAS Number	Units	Effluent Sample Type
92	Indeno(1,2,3-cd) Pyrene	193-39-5	µg/L	Grab
93	Isophorone	78-59-1	µg/L	Grab
98	N-Nitrosodiphenylamine	86-30-6	µg/L	Grab
96	N-Nitrosodimethylamine	62-75-9	µg/L	Grab
97	N-Nitrosodi-n-Propylamine	621-64-7	µg/L	Grab
95	Nitrobenzene	98-95-3	µg/L	Grab
53	Pentachlorophenol (PCP)	87-86-5	µg/L	Grab
99	Phenanthrene	85-01-8	µg/L	Grab
54	Phenol	108-95-2	µg/L	Grab
100	Pyrene	129-00-0	µg/L	Grab

INORGANICS

CTR Number	Inorganic Parameters	CAS Number	Units	Effluent Sample Type
NL	Aluminum	7429-90-5	µg/L	Grab
1	Antimony, Total	7440-36-0	µg/L	Grab
2	Arsenic, Total	7440-38-2	µg/L	Grab
15	Asbestos	1332-21-4	µg/L	Grab
3	Beryllium, Total	7440-41-7	µg/L	Grab
4	Cadmium, Total	7440-43-9	µg/L	Grab
5a (III)	Chromium, Total	7440-47-3	µg/L	Grab
6	Copper, Total	7440-50-8	µg/L	Grab
14	Iron, Total	7439-89-6	µg/L	Grab
7	Lead, Total	7439-92-1	µg/L	Grab
8	Mercury, Total	7439-97-6	µg/L	Grab
NL	Mercury, Methyl	22967-92-6	µg/L	Grab
NL	Manganese, Total	7439-96-5	µg/L	Grab
9	Nickel, Total	7440-02-0	µg/L	Grab
10	Selenium, Total	7782-49-2	µg/L	Grab
11	Silver, Total	7440-22-4	µg/L	Grab
12	Thallium, Total	7440-28-0	µg/L	Grab
13	Zinc, Total	7440-66-6	µg/L	Grab

NON-METALS/MINERALS

CTR Number	Non-Metal/Mineral Parameters	CAS Number	Units	Effluent Sample Type
NL	Boron	7440-42-8	µg/L	Grab
NL	Chloride	16887-00-6	mg/L	Grab
14	Cyanide, Total (as CN)	57-12-5	µg/L	Grab
NL	Phosphorus, Total (as P)	7723-14-0	mg/L	Grab
NL	Sulfate	14808-79-8	mg/L	Grab
NL	Sulfide (as S)	5651-88-7	mg/L	Grab

PESTICIDES/PCBs/DIOXINS

CTR Number	Pesticide/PCB/Dioxin Parameters	CAS Number	Units	Effluent Sample Type
110	4,4-DDD	72-54-8	µg/L	Grab
109	4,4-DDE	72-55-9	µg/L	Grab
108	4,4-DDT	50-29-3	µg/L	Grab
112	alpha-Endosulfan	959-98-8	µg/L	Grab
103	alpha-BHC (Benzene hexachloride)	319-84-6	µg/L	Grab
102	Aldrin	309-00-2	µg/L	Grab
113	beta-Endosulfan	33213-65-9	µg/L	Grab
104	beta-BHC (Benzene hexachloride)	319-85-7	µg/L	Grab
107	Chlordane	57-74-9	µg/L	Grab
106	delta-BHC (Benzene hexachloride)	319-86-8	µg/L	Grab
111	Dieldrin	60-57-1	µg/L	Grab
114	Endosulfan Sulfate	1031-07-8	µg/L	Grab
115	Endrin	72-20-8	µg/L	Grab
116	Endrin Aldehyde	7421-93-4	µg/L	Grab
117	Heptachlor	76-44-8	µg/L	Grab
118	Heptachlor Epoxide	1024-57-3	µg/L	Grab
105	gamma-BHC (Benzene hexachloride or Lindane)	58-89-9	µg/L	Grab
119	Polychlorinated Biphenyl (PCB) 1016	12674-11-2	µg/L	Grab
120	PCB 1221	11104-28-2	µg/L	Grab
121	PCB 1232	11141-16-5	µg/L	Grab
122	PCB 1242	53469-21-9	µg/L	Grab
123	PCB 1248	12672-29-6	µg/L	Grab
124	PCB 1254	11097-69-1	µg/L	Grab
125	PCB 1260	11096-82-5	µg/L	Grab
126	Toxaphene	8001-35-2	µg/L	Grab
16	2,3,7,8-TCDD (Dioxin)	1746-01-6	mg/L	Grab

CONVENTIONAL PARAMETERS

CTR Number	Conventional Parameters	CAS Number	Units	Effluent Sample Type
NL	pH	--	SU	Meter
NL	Temperature	--	°C	Grab

NON-CONVENTIONAL PARAMETERS

CTR Number	Nonconventional Parameters	CAS Number	Units	Effluent Sample Type
NL	Foaming Agents (MBAS)	MBAS	mg/L	Grab
NL	Hardness (as CaCO3)	471-34-1	mg/L	Grab
NL	Specific Conductance (Electrical Conductivity or EC)	EC	µmhos/cm	Grab

CTR Number	Nonconventional Parameters	CAS Number	Units	Effluent Sample Type
NL	Total Dissolved Solids (TDS)	TDS	mg/L	Grab
NL	Dissolved Organic Carbon (DOC)	DOC	mg/L	Grab

NUTRIENTS

CTR Number	Nutrient Parameters	CAS Number	Units	Effluent Sample Type
7	Ammonia (as N)	7664-41-7	mg/L	Grab
8	Nitrate (as N)	14797-55-8	mg/L	Grab
9	Nitrite (as N)	14797-65-0	mg/L	Grab

4. **Table E-7 Testing Requirements.** The Discharger shall comply with the following testing requirements when monitoring for the parameters described in Table E-7:
- a. **Applicable to All Parameters.** Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
 - b. **Grab Samples.** A grab sample is defined as an individual discrete sample collected over a period of time not exceeding 15 minutes. It can be taken manually, using a pump, scoop, vacuum, or other suitable device.
 - c. **24-hour Composite Samples.** All 24-hour composite samples shall be collected from a 24-hour flow proportional composite.
 - d. **Redundant Sampling.** The Discharger is not required to conduct effluent or receiving water monitoring for constituents that have already been sampled in a given month, as required in Table E-3 & E-4.
 - e. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
 - f. **Sample Type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-7.
 - g. **Bis (2-ethylhexyl) phthalate.** In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.

B. Self-Monitoring Reports (SMRs)

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

Table E-8. 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
3/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of following year
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of following year
1/Year	Permit effective date	1 January through 31 December	1 February of following year

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

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

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

For the purposes of data collection, the laboratory shall write the

estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\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 Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. **The Discharger shall submit SMRs** in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

- b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. The Discharger shall attach all final laboratory reports from all contracted commercial laboratories, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed.
 7. The Discharger shall submit in the SMRs calculations and reports in accordance with the following requirements:
 - a. **Removal Efficiency (BOD₅ and TSS).** The Discharger shall calculate and report the percent removal of BOD₅ and TSS in the SMRs. The percent removal shall be calculated as specified in section VII.A. of the Limitations and Discharge Requirements.
 - b. **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.C. of the Waste Discharge Requirements.
 - c. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall report monthly in the self-monitoring report the dissolved oxygen concentrations in the effluent (EFF-001) and the receiving water (RSW-001 and RSW-002).
 - d. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in section V.A.17.a-e. of the Waste Discharge Requirements.
 - e. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMR's)

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

D. Other Reports

1. **Analytical Methods Report.** The Discharger shall complete and submit an Analytical Methods Report, electronically via CIWQS submittal, by the due date shown in the Technical Reports Table. The Analytical Methods Report shall include the following for each constituent to be monitored in accordance with this Order: 1) applicable water quality objective, 2) reporting level (RL), 3) method detection limit (MDL), and 4) analytical method. The analytical methods shall be sufficiently sensitive with RLs consistent with the SSM Rule per 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv), and with the Minimum Levels (MLs) in the SIP, Appendix 4. The “Reporting Level or RL” is synonymous with the “Method Minimum Level” described in the SSM Rule. If an RL is not less than or equal to the applicable water quality objective for a constituent, the Discharger shall explain how the proposed analytical method complies with the SSM Rule as outlined above in Attachment E, Section I.F. Central Valley Water Board staff will provide a tool with the permit’s Notice of Adoption to assist the Discharger in completing this requirement. The tool will include the constituents and associated applicable water quality objectives to be included in the Analytical Methods Report.

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

3. **Recycled Water Policy Annual Reports.** In accordance with Section 3 of the Water Quality Control Policy for Recycled Water (Recycled Water Policy), the Discharger shall electronically submit an annual report of monthly data to the State Water Board by 30 April annually covering the previous calendar year using the State Water Board's [GeoTracker website](https://geotracker.waterboards.ca.gov/) (<https://geotracker.waterboards.ca.gov/>). Information for setting up and using the GeoTracker system can be found in the *ESI Guide for Responsible Parties* document on the State Water Board's website for [Electronic Submittal of Information](https://www.waterboards.ca.gov/ust/electronic_submittal/index.html) (https://www.waterboards.ca.gov/ust/electronic_submittal/index.html).

The annual report to GeoTracker must include volumetric reporting of the items listed in Section 3.2 of the [Recycled Water Policy](https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf) (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf). A pdf of the upload confirmation from GeoTracker for the Recycled Water Policy Annual Report shall be uploaded into CIWQS annually as a technical report per Table E-9, to demonstrate compliance with this reporting requirement.

4. **Report of Waste Discharge (ROWD).** For the 5-year permit renewal, the Discharger shall submit a written report to the Central Valley Water Board, electronically via CIWQS submittal, containing, at minimum, the following by the due date in the Technical Reports Table:
- a. Report of Waste Discharge (Form 200);
 - b. NPDES Form 2A;
 - c. NPDES Form 2S
 - e. **Salinity Evaluation and Minimization Plan.** An evaluation of effluent monthly average electrical conductivity results in comparison to the performance-based trigger outlined in Section VI.C.3.a, and if exceedances of the trigger occur during the permit term, a plan on how the Discharger will address salinity in the discharge.
 - f. **Mixing Zone Requests.** A mixing zone analysis for constituents the Discharger is requesting the continuation of dilution credits and mixing zones in the calculation of water quality-based effluent limits.
7. **Technical Report Submittals.** This Order includes requirements to submit a Report of Waste Discharge (ROWD), special study technical reports, progress reports, and other reports identified in the MRP (hereafter referred to collectively as "technical reports"). The Technical Reports Table and subsequent table notes below summarize all technical reports required by this Order and the due dates for submittal. All technical reports shall be submitted electronically via CIWQS submittal. Technical reports should be uploaded as a PDF, Microsoft Word, or Microsoft Excel file attachment.

Table E-9. Technical Reports

Report #	Technical Report	Due Date	CIWQS Report Name
1	Report of Waste Discharge	31 July 2026	ROWD
2	Analytical Methods Report	30 September 2022	MRP X.D.1
3	Analytical Methods Report Certification	30 September 2023	MRP IX.D.2.
4	Annual Operations Report	1 February 2023	MRP X.D.2
5	Annual Operations Report	1 February 2024	MRP X.D.2
6	Annual Operations Report	1 February 2025	MRP X.D.2
7	Annual Operations Report	1 February 2026	MRP X.D.2
8	Annual Operations Report	1 February 2027	MRP X.D.2
9	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2023	MRP X.D.3
10	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2024	MRP X.D.3
11	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2025	MRP X.D.3
12	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2026	MRP X.D.3
13	Recycled Water Policy Annual Report Submittal Confirmation	30 April 2027	MRP X.D.3

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

Waste Discharge ID:	5B05NP00007
CIWQS Facility Place ID:	205793
Discharger:	City of Angels
Name of Facility:	Wastewater Treatment Plant
Facility Address:	3000 Centennial Road
Facility City, State Zip:	Angels Camp, Ca 95222
Facility County:	Calaveras County
Facility Contact, Title and Phone Number:	Chris O’Flinn, Chief Plant Operator, 209-736-2412
Authorized Person to Sign and Submit Reports:	Rebecca Callen, City Administrator, (209) 736-2181
Mailing Address:	584 S. Main St., P.O. Box 667, Angels Camp, CA 95222
Billing Address:	Same as Mailing Address
Type of Facility:	Publicly Owned Treatment Works (POTW)
Major or Minor Facility:	Minor
Threat to Water Quality:	3
Complexity:	B
Pretreatment Program:	Not Applicable
Recycling Requirements:	Producer of Title 22 Water
Facility Permitted Flow:	1.9 MGD
Facility Design Flow:	0.6 MGD, average dry weather flow 1.9 MGD, peak wet weather flow
Watershed:	Upper Stanislaus
Receiving Water:	Angels Creek
Receiving Water Type:	Inland Surface Water

- A.** The City of Angels (hereinafter Discharger) is the owner and operator of Wastewater Treatment Plant (hereinafter Facility), a Publicly Owned Treatment Works (POTW).

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

- B.** The Facility discharges wastewater to Angels Creek, a water of the United States, tributary to New Melones Reservoir within Upper Stanislaus. The Discharger was previously regulated by Order R5-2017-0063 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0085201 adopted on 9 June 2017 and with an expiration date of 31 July 2022. 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 Board, Division of Water Rights and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce any applicable requirements under Water Code section 1211. This is not an NPDES permit requirement.
- D.** The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDR’s) and NPDES permit on 13 September 2021. The application was deemed complete, and the permit was administratively extended in a letter dated 15 October 2021. A site visit was conducted on 3 March 2022 to meet with the Discharger and observe operations.
- E.** Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Under 40 C.F.R. section 122.6(d), States authorized to administer the NPDES program may administratively continue State-issued permits beyond their expiration dates until the effective date of the new permits, if State law allows it. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the City of Angels and Six Mile Village and serves a population of approximately 4,178. The design daily average flow capacity of the Facility is 1.9 million gallons per day (MGD).

A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system at the Facility consists of headworks screening, biological treatment with three sequencing batch reactors (SBR’s) that provide nitrification/denitrification, coagulation and flocculation, recirculating sand filtration,

and ultraviolet light (UV) disinfection. The headworks includes an ultrasonic flow meter, mechanical screening, and grit removal. During periods of high influent flows, wastewater may bypass the mechanical screen and pass through a manual bar screen or be diverted to a 3 million gallon equalization basin and returned to the headworks as flows subside.

Until August 2016 the Discharger was adding hydrated lime slurry (calcium hydroxide) to the influent to increase the alkalinity and pH, to assist with the nitrification/denitrification process, and to reduce Nocardia growth, which causes foaming in the SBR's and aerobic digesters. At the end of August 2016 the Discharger stopped using calcium hydroxide and started adding a caustic solution. The rationale behind this change was to minimize the addition of salts to the wastewater during the treatment processes. Thus, the Discharger is experimenting with other options as well and at the same time is working on developing an appropriate dosage caustic solution for the Facility. The Facility has three SBR's, a fourth being used as an intermediate storage basin, but can be converted to an SBR if necessary. Wastewater is distributed to each of the SBR's equally. Each SBR operates on a 4-hour cycle, which includes 2 hours of aeration, 1 hour of settling, and 1 hour of decanting. The decant from the SBR's flows to the intermediate storage basin to equalize batch flows and provide continuous flow to the four recirculating Dynasand filters.

The Facility uses a UV disinfection system consisting of two channels with three banks in each channel, each with 36 lamps. Having previously used a chlorine disinfection system, the contact chamber is now maintained for use as emergency storage. As allowed by WDR Order 98-110, the effluent is discharged to a 66 million gallon storage reservoir (Holman Reservoir) where it is used for spray irrigation of 61 acres of pastureland. During the irrigation season, as allowed by WDR Order 98-110, the effluent may also be recycled on 110 acres of the Greenhorn Creek Golf Course. When wastewater flows exceed the land disposal and storage capacity of the Facility, as allow by this Order, effluent may be discharged seasonally to Angels Creek.

Sludge is aerobically digested in two digesters and dewatered by a belt filter press and sludge drying beds. Filtrate from the belt filter press is drained back to the headworks. Solids are transported offsite for disposal as needed and a minimum of once per year.

B. Discharge Points and Receiving Waters

1. The Facility is located in section 3 and 10, T2N, R13E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Angels Creek, a water of the United States and a tributary to New Melones Reservoir at a point latitude 38° 03' 20" N and longitude 120° 32' 33" W.

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

Effluent limitations contained in Order R5-2017-0063 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2017-0063 are as follows. The Discharger only discharged to Angels Creek at Discharge Point 001 for a total of 57 days during the permit term, from 25 February 2019 to 22 April 2019. Table F-2 reflects monitoring data collected during this period of discharge.

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Historic Effluent Limitations	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15 MDEL 20	10.6	20	20
Biochemical Oxygen Demand	lb/day	AMEL 158 AWEL 238 MDEL 317	37.2	67	67
Total Suspended Solids	mg/L	AMEL 10 AWEL 15 MDEL 20	2.7	5	5
Total Suspended Solids	lb/day	AMEL 158 AWEL 238 MDEL 317	10.35	16.8	16.8
pH	units	Instantaneous Max 8.0 Instantaneous Min 6.5	7.03 6.91	7.18 6.90	7.31 6.75
Cyanide, Total (as CN)	µg/L	AMEL 9.5 MDEL 19	ND	ND	ND
Zinc, Total Recoverable	µg/L	AMEL 80 MDEL 160	ND	ND	ND
Ammonia Nitrogen, Total (as N)	mg/L	AMEL 10 AWEL 17	5.52	7.96	12.1
Nitrate Plus Nitrite (as N)	mg/L	AMEL 10 AWEL 17	4.9	4.9	4.9

Table F-2 Notes:

1. Discharge to Angels Creek only occurred from February 2019 through April 2019.

D. Compliance Summary

The Discharger was not subject to any Administrative Civil Liability orders during the term of Order R5-2017-0063.

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

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

B. California Environmental Quality Act (CEQA)

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

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

1. **Water Quality Control 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 for the *Sacramento River and San Joaquin River Basins, Fifth Edition, May 2018* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

The Basin Plan at section 2.1 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table 2-1, section 2, does not specifically identify beneficial uses for Angels Creek, but does identify present and potential uses for New Melones Reservoir, to which Angels Creek 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. Thus, beneficial uses applicable to Angels Creek are as follows:

Table F-3 Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Angels Creek	<u>Existing:</u> Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); hydropower generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); cold freshwater habitat (COLD); and wildlife habitat (WILD).

- b. **Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California.** The Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) was adopted by the State Water Resources Control Board (State Water Board) on 1 December 2020, under authority provided by Water Code sections 13140 and 13170. Except as otherwise indicated, this ISWEBE Plan establishes provisions for water quality and sediment quality that apply to all inland surface waters, enclosed bays, and estuaries and coastal lagoons of the state, including both waters of the United States and surface waters of the state.
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.
3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent

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

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
6. **Domestic Water Quality.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that "the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which

will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”.

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

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

9. **Storm Water Requirements.** U.S. EPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The State Water Board does not require wastewater treatment facilities with design flows less than 1 MGD to obtain coverage under the Industrial Storm water General Order. Therefore, this Order does not regulate storm water.
11. **Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The State Water Board amended the MRP for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMP's) and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.

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

12. **Sewage Sludge and Biosolids.** This Order does not authorize any act that results in violation of requirements administered by U.S. EPA to implement 40 C.F.R. Part 503, Standards for the Use or Disposal of Sewage Sludge. These standards regulate the final use or disposal of sewage sludge that is generated

during the treatment of domestic sewage in a municipal wastewater treatment facility. The Discharger is responsible for meeting all applicable requirements of 40 C.F.R. Part 503 that are under U.S. EPA's enforcement authority.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 6 April 2018 U.S. EPA gave final approval to California's 2014 – 2016 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 C.F.R. part 130, et seq.)." The Basin Plan also states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." Angels Creek is not listed on the 303(d) list of impaired water bodies.

E. Other Plans, Polices and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States.

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

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

A. Discharge Prohibitions

- 1. Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
- 2. Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR 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 treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance)**. This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance
4. **Prohibition III.D (No discharge of hazardous waste)**. This prohibition is based on California Code of Regulations, title 22, section 66261.1 et seq, that prohibits discharge of hazardous waste.
5. **Prohibition III.E (The discharge of tertiary treated wastewater at Discharge Point 001 is prohibited except from 15 November through 15 May, when the average daily Angels Creek flows are at least 12 MGD and provide a downstream flow ratio of greater than or equal to 20:1 (Angels Creek flow: effluent) as a daily average)**. Due to a lack of wintertime storage capacity, direct discharge to Angels Creek is permitted only when necessary to prevent unauthorized overflows from the storage pond during wet winters, and only during high stream flows when the average daily Angels Creek flows are at least 12 MGD and provide a flow ratio of at least 20:1. This flow ratio is based on the Discharger’s Mitigated Negative Declaration, which finds that the discharge will result in no significant impacts to water quality due to the discharge of Title 22 effluent only during times of high stream flows. The minimum average daily flow of 12 MGD is to ensure that an adequate zone of passage is provided and is based on the flow in the creek at the time the Discharger conducted its mixing zone study in 2007 and confirmation mixing zone study in 2011. This prohibition is retained from Order R5-2017-0063.

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. A daily maximum effluent limitation for BOD₅ and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 C.F.R. section 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD₅ and TSS over each calendar month. This Order requires Water Quality Based Effluent Limitations (WQBELs) that are equal to or more stringent than the secondary technology-based treatment described in 40 CFR part 133 (See section IV.C.3.d of the Fact Sheet for a discussion on Pathogens which includes WQBELs 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 WQBELs for pH to comply with the Basin Plan's water quality objectives for pH.

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 30 AWEL 45
BOD	% Removal	85

Parameter	Units	Effluent Limitations
Total Suspended Solids	mg/L	AMEL 30 AWEL 45
TSS	% Removal	85
pH	Units	Instantaneous Max 9.0 Instantaneous Min 6.0

Table F-4 Notes:

- Note that more stringent WQBELs for BOD₅, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.c of this Fact Sheet).

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards.

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, WQBELs must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state’s narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

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

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

- a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.
- b. **Effluent and Ambient Background Data.** The Discharger only discharged to Angels Creek at Discharge Point 001 for a total of 57 days during the permit term, from 25 February 2019 to 22 April 2019. The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from this period, which includes effluent and ambient background data submitted in SMRs, the Report of Waste Discharge (ROWD). The Discharger did not conduct monthly effluent and receiving water characterization sampling as described in Order R5-2017-0063. Characterization sampling was performed monthly between November 2021 and January 2022; the data from this sampling was included in the RPA. Infrequent discharge and the lack of characterization sampling resulted in insufficient data to perform reasonable potential

analysis for some parameters. In these situations additional data outside of this range was analyzed, as discussed in Section IV.C.3, below.

c. **Assimilative Capacity/Mixing Zone.**

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

For non-Priority Pollutant constituents the allowance of mixing zones by the Central Valley Water Board is discussed in the Basin Plan, *Policy for Application of Water Quality Objectives, which states in part, "In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the EPA's Water Quality Standards Handbook and the [TSD]. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge."*

For Priority Pollutants, the SIP supersedes the Basin Plan mixing zone provisions. Section 1.4.2 of the SIP states, in part, "...with the exception of effluent limitations derived from TMDL's, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers...The applicable priority pollutant criteria and objectives are to be met through a water body except within any mixing zone granted by the Regional Board. **The allowance of mixing zones**

is discretionary and shall be determined on a discharge-by-discharge basis. The Regional Board may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board.” [emphasis added]

For incompletely mixed discharges, the Discharger must complete an independent mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. In granting a mixing zone, section 1.4.2.2 of the SIP requires the following to be met:

“A mixing zone shall be as small as practicable. The following conditions must be met in allowing a mixing zone:

A mixing zone shall not:

1. *compromise the integrity of the entire water body;*
2. *cause acutely toxic conditions to aquatic life passing thorough the mixing zone;*
3. *restrict the passage of aquatic life;*
4. *adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*
5. *produce undesirable or nuisance aquatic life;*
6. *result in floating debris, oil, or scum;*
7. *produce objectionable color, odor, taste, or turbidity;*
8. *cause objectionable bottom deposits;*
9. *cause nuisance;*
10. *dominate the receiving water body or overlap a mixing zone from different outfalls; or*
11. *be allowed at or near any drinking water intake. A mixing zone is not a source of drinking water. To the extent of any conflict between this determination and the Sources of Drinking Water Policy (Resolution No. 88-63), this SIP supersedes the provisions of that policy.”*

Section 1.4.2.1 of the SIP establishes the authority for the Central Valley Water Board to consider dilution credits based on the mixing zone conditions in a receiving water. Section 1.4.2.1 in part states:

“The dilution credit, D, is a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. The dilution credit is a value used in the calculation of effluent

limitations (described in section 1.4). Dilution credits may be limited or denied on a pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in the discharge.”

- ii. **Dilution/Mixing Zone Study Results.** Order R5-2007-0031-01 allowed an acute mixing zone extending 18 feet downstream of the point of discharge with a dilution credit of 9:1 and chronic and human health mixing zones extending 36 feet downstream with a dilution credit of 18:1. The mixing zones were based on a study conducted on 30 January 2009 using a prototype diffuser.

The Discharger conducted a confirmation mixing zone study in November 2011 following the construction of an outfall diffuser containing ports extending halfway across the width of Angels Creek and located upstream of a rock streambed providing turbulent flow and rapid mixing. The 2011 mixing zone study was conducted in order to confirm that adequate mixing was provided in Angels Creek and a zone of passage for aquatic life was allowed.

A field study was performed by discharging a known flow rate of surrogate effluent into Angels Creek through the diffuser under critical low creek flow conditions. The surrogate effluent discharge rate was controlled so that the surrogate effluent flow made up approximately 5 percent of the downstream flow of Angels Creek, simulating worst-case flow conditions consistent with the prohibition in Order R5-2007-0031-01 requiring there to be a flow ratio greater than or equal to 20:1 of Angels Creek flow to effluent. The surrogate effluent was created by pumping Angels Creek water upstream of the discharge, adding fluorescent dye, and discharging the surrogate effluent into the outfall. A surrogate effluent was used because the study was performed outside of the permitted discharge period from 15 November through 15 May.

The fluorescence of Angels Creek was measured at 9 feet, 18 feet, 27 feet, and 36 feet downstream of the diffuser to determine the extent of the effluent plume and the amount of mixing. The study concluded that mixing with the installed diffuser was more rapid than the study conducted on the original prototype diffuser. A minimum dilution of 18:1 occurs at 27 feet downstream (rather than 36 feet with the prototype diffuser), which represents the edge of the mixing zones for chronic aquatic life criteria and human health criteria. A minimum dilution of 9:1 occurs at 9 feet downstream (rather than 18 feet with the prototype diffuser), which represents the edge of the mixing zone for acute aquatic life criteria.

The study also concluded that an adequate zone of passage is provided in Angels Creek. During the issuance of Order R5-2007-0031-01, California Department of Fish and Wildlife (DFW) representatives expressed concern about the zone of passage for aquatic life. The mixing zone study report was submitted to the DFW to inform them of the updated mixing zone study and new information regarding the zone of passage.

iii. Evaluation of Available Dilution for Acute and Chronic Aquatic Life Criteria (ammonia, zinc, cyanide, and chronic whole effluent toxicity). The SIP requires a mixing zone must be as small as practicable and comply with eleven (11) prohibitions under section 1.4.2.2.A. The Discharger has requested acute and chronic aquatic life mixing zones for ammonia and zinc, and a chronic mixing zone for cyanide for compliance with aquatic life water quality criteria for these constituents. Based on the mixing zone study, the acute aquatic life mixing zone is less than 7 feet wide and extends less than 9 feet downstream of the diffuser. The chronic aquatic life mixing zone is sized to protect the water body as a whole and is generally larger than the acute mixing zone. The chronic aquatic life mixing zone is 7 feet wide and extends 27 feet downstream of the diffuser. Mixing zones for acute and chronic aquatic life criteria have been allowed in this Order for development of WQBELs for ammonia, zinc, and cyanide and meet the eleven prohibitions of the SIP as follows:

- (1) *Shall not compromise the integrity of the entire waterbody* – The TSD states that, “*If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of a waterbody (such as a river segment), then mixing zones are likely to have little effect on the integrity of the waterbody as a whole, provided that the mixing zone does not impinge on unique or critical habitats.*” The mixing zones are approximately 7 feet x 9 feet (acute), and 7 feet x 27 feet (chronic)/ The mixing zones are small and make up less than one-half of the stream width. The mixing zones do not compromise the integrity of the entire waterbody.
- (2) *Shall not cause acutely toxic conditions to aquatic life passing through the mixing zone* – The SIP requires that the acute mixing zone be appropriately sized to prevent lethality to organisms passing through the mixing zone. U.S. EPA recommends that float times through a mixing zone less than 15 minutes ensures that there will not be lethality to passing organisms. The acute mixing zone allowed in this Order extends only 9 feet downstream of the diffuser. The acute mixing zone is in a turbulent stretch of Angels Creek with rapid flow. The float time is very short, literally only a few seconds. In addition, this Order includes an acute toxicity effluent limitation that requires compliance to be determined based

on acute bioassays using 100% effluent. Compliance with these requirements ensures that acutely toxic conditions to aquatic life passing through the acute and chronic mixing zones do not occur.

- (3) *Shall not restrict the passage of aquatic life* – The Discharger conducted a mixing zone study to evaluate the near-field effects of the discharge. The Discharger evaluated the zone of passage around the mixing zone where water quality objectives are met. The result of the mixing zone study indicates that there is an adequate zone of passage for aquatic life that is at least one-half the width of Angels Creek.
- (4) *Shall not adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws* – The acute and chronic mixing zones will not cause acutely toxic conditions, allow an adequate zone of passage, and are sized appropriately to ensure that there will be no adverse impacts to biologically sensitive or critical habitats.
- (5-9) *Shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance* – The current discharge has not been shown to result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance. This Order requires the discharge meets Title 22 (or equivalent) tertiary filtration, which will ensure continued compliance with these mixing zone requirements. With these requirements, the acute and chronic mixing zones will not produce undesirable or nuisance aquatic life, result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; or cause nuisance.
- (10) *Shall not dominate the receiving water body or overlap a mixing zone from different outfalls* – The acute and chronic mixing zones are small relative to the water body, so it will not dominate the water body. Furthermore, the mixing zones do not overlap mixing zones from other outfalls. There are no outfalls or mixing zones in the vicinity of the discharge.
- (11) *Shall not be allowed at or near any drinking water intake* – The acute and chronic mixing zones are not near a drinking water intake.

A pollutant-by-pollutant evaluation is provided in subsection iv. below to evaluate whether the mixing zones for each pollutant are as small as practicable and comply with the State and federal antidegradation requirements.

**iv. Evaluation of Available Dilution for Specific Constituents
(Pollutant-by-Pollutant Evaluation)**

When determining whether to allow dilution credits for a specific pollutant, several factors must be considered, such as, available assimilative capacity, facility performance, and compliance with state and federal antidegradation requirements. The receiving water contains assimilative capacity for ammonia, zinc, and cyanide, and acute aquatic life criteria and chronic aquatic life criteria mixing zones meet the mixing zone prohibitions of the SIP section 1.4.2.2.A.

The SIP also requires, “A mixing zone shall be as small as practicable” and states in Section 1.4.2.2.B, “The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements.” The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16 (State Anti-Degradation Policy). The State Anti-Degradation Policy incorporates the federal antidegradation policy (State Water Board Order WQ 86-17 [*Fay*]) and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Item 2 of the State Anti-Degradation Policy states:

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

The mixing zones allowed in this Order are as small as practicable and will result in the Discharger implementing best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

A pollutant-by-pollutant evaluation is provided below that evaluates facility performance and percent assimilative capacity used for each pollutant.

(a) Ammonia. As outlined above, acute and chronic aquatic life criteria mixing zones extending 9 feet and 27 feet, respectively, downstream of the Facility’s outfall and dilution credit of 9:1 and 18:1, respectively, meet the eleven mixing zone prohibitions of Section 1.4.2.2.A of the SIP. In this case, however, to ensure the

mixing zones are as small as practicable and considering section 1.4.2.2.B of the SIP, the Central Valley Water Board finds the mixing zones must be limited. The dilution credits for ammonia have been adjusted based on Facility performance resulting in a dilution credit of 2.4:1 for the acute mixing zone and 2.9:1 for the chronic mixing zone.

This Order is carrying forward the effluent limitations for ammonia from previous Order R5-2017-0063 based on the allowance of the mixing zone. Therefore, no additional use of assimilative capacity is being authorized by this Order. The effluent limits continue to result in the implementation of best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

(b) Cyanide. As outlined above, a chronic aquatic life mixing zone extending 27 feet downstream of the Facility's outfall and dilution credit of 18:1 meets the eleven mixing zone prohibitions of Section 1.4.2.2.A of the SIP. In this case, however, to ensure the mixing zone is as small as practicable and considering section 1.4.2.2.B of the SIP, the Central Valley Water Board finds the mixing zone must be limited. The dilution credit for cyanide has been adjusted based on Facility performance resulting in a dilution credit of 4:1 for the chronic mixing zone.

This Order is carrying forward the effluent limitations for cyanide from previous Order R5-2017-0063 based on the allowance of the mixing zone. Therefore, no additional use of assimilative capacity is being authorized by this Order. The effluent limits continue to result in the implementation of best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

(c) Zinc. As outlined above, acute and chronic aquatic life criteria mixing zones extending 9 feet and 27 feet, respectively, downstream of the Facility's outfall and dilution credit of 9:1 and 18:1, respectively, meet the eleven mixing zone prohibitions of Section 1.4.2.2.A of the SIP. Furthermore, considering Facility performance and compliance with the state and federal antidegradation requirements, the mixing zones are as small as practicable and comply with Section 1.4.2.2.B of the SIP.

The CTR criteria for zinc varies based on hardness, as discussed in Section IV.C.2.e, below, for Hardness-Dependent CTR Metals Criteria. When developing WQBELs for zinc considering dilution

and use of assimilative capacity the design upstream receiving water hardness was used to establish the hardness-dependent criteria. The design upstream hardness was 10 mg/L (as CaCO₃) based on 48 samples from November 2012 to January 2022, which result in acute and chronic criteria of 17 ug/L. The maximum background zinc concentration was 4.4 µg/L; therefore, assimilative capacity is available in the receiving water.

This Order includes effluent limitations for zinc that are more stringent than previous Order R5-2017-0063 based on the allowance of the mixing zone. Therefore, no additional use of assimilative capacity is being authorized by this Order. The effluent limits continue to result in the implementation of best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

Based on the findings above, this Order grants mixing zones and dilution credits that have been used for the calculation of WQBELs for ammonia, cyanide, and zinc. The dimensions of the mixing zones and allowable dilution credits are shown in Table F-5, below.

Table F-5. Mixing Zones and Dilution Credits

Parameter	Mixing Zone Type	Allowed Dilution Credit
Ammonia	Acute and Chronic Aquatic Life	Acute 2.9:1 Chronic 2.4:1
Cyanide	Chronic Aquatic Life	4:1
Zinc	Acute and Chronic Aquatic Life	Acute 9:1 Chronic 18:1

(d) Chronic Whole Effluent Toxicity (WET). As discussed in section IV.C.2.iii, above, a mixing zone for chronic toxicity meets the requirements of the SIP. Section 1.4.2.2 of the SIP requires that, “A mixing zone shall be as small as practicable.” And section 1.4.2.2.B requires, “The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements.” Based on the Discharger’s mixing zone study, the chronic mixing zone extends 27 feet downstream. Previous Order R5-2017-0063 allowed a chronic toxicity monitoring trigger of 16 TUc, which allowed for a dilution credit of 16:1. The Discharger conducted a Chronic Toxicity Monitoring Trigger Study, consisting of four chronic toxicity tests, to determine if the chronic toxicity mixing zone is as small as practicable and whether or not the Discharger can achieve compliance with a

lower trigger. Based on Facility performance indicated by results of chronic toxicity tests conducted in February 2013, December 2013, and February 2014, the Central Valley Water Board has determined that the chronic toxicity mixing zone is as small as practicable and a chronic dilution credit of 16:1 is sufficient. Therefore, this Order retains the chronic toxicity monitoring trigger of 16 TUC, which allows for a dilution credit of 16:1.

- 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 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. For Angels Creek the Basin Plan contains hardness-dependent site-specific objectives for cadmium, copper, and zinc that apply in lieu of the CTR acute criteria for these metals. This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP and the CTR.

The ambient hardness for the Angels Creek ranges from 10 mg/L to 65 mg/L based on collected ambient data from November 2012 through January 2022. 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 10 mg/L (minimum) up to 65 mg/L (maximum).

The Central Valley Water Board finds that the use of the ambient hardness values and associated acute and chronic criteria shown in Table F-6 to conduct the reasonable potential analysis (RPA) and, unless otherwise noted in the table, to calculate WQBELs, protect beneficial uses under all ambient receiving water conditions and comply with the SIP, CTR, and Basin Plan.

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

CTR Metals	Ambient Hardness (mg/L)	Acute Criteria (µg/L, total)	Chronic Criteria (µg/L, total)
Copper	27	4.1	3.0
Chromium III	27	600	70
Cadmium	25 (acute) 27 (chronic)	0.95	0.9
Lead	25	14	0.54
Nickel	27	160	17
Silver	22	0.3	--
Zinc	27	40	40

Table F-6 Notes:

1. **Criteria (ug/L total).** Acute and chronic criteria were rounded to two significant figures in accordance with the CTR (40 C.F.R. section 131.38(b)(2)).
2. **Ambient hardness (mg/L).** Values in Table F-6 represent actual observed receiving water hardness measurements.
3. **Zinc.** This Order allows a mixing zone for zinc. The ambient hardness shown above is only appropriate for conducting the RPA, because dilution has not been considered. As discussed in Section IV.C.2.c, when considering dilution to calculate the WQBELs the appropriate ambient hardness is 10 mg/L (as CaCO₃) based solely on upstream receiving water hardness.

3. Determining the Need for WQBELs

Clean Water Act section 301(b)(1)(C) requires effluent limitations necessary to meet water quality standards, and 40 C.F.R. section 122.44(d) requires NPDES permits to include conditions that are necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality. Federal regulations at 40 C.F.R 122.44(d)(1)(i) state, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." Additionally, 40 C.F.R. section 122(d)(1)(vii) requires effluent limits to be developed consistent with any available wasteload allocations developed and approved for the discharge. The process to determine whether a WQBEL is required as described in 40 C.F.R. section 122.44(d)(1)(i) is referred to as a reasonable potential analysis or RPA. Central Valley Water Board staff conducted RPA's for nearly 200 constituents, including the 126 U.S. EPA priority toxic pollutants. This section includes details of the RPAs 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 RPAs have been conducted based on EPA guidance considering multiple lines of evidence and the site-specific conditions of the discharge.

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

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

- i. **Aluminum**

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

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and dissolved organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life.

The 2018 U.S. EPA NAWQC for protection of freshwater aquatic life for aluminum recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (4-day average; criteria continuous concentration or CCC) standards based upon Multiple Linear Regression (MLR) models for vertebrate and invertebrate species that use pH, dissolved organic carbon (DOC), and total hardness to quantify the effects of these water chemistry parameters on the bioavailability and resultant toxicity of aluminum to aquatic organisms. The 2018 Aluminum NAWQC document provides look up tables or a Microsoft Excel spreadsheet to calculate the criteria based on pH, DOC, and total hardness. The U.S. EPA aluminum criteria have been used to implement the Basin Plan's narrative toxicity objective.

A site-specific CMC of 234 µg/L and CCC of 147 µg/L were calculated considering pH, hardness, and DOC representative of the receiving water and effluent conditions. Effluent and receiving water sampling results for pH and hardness from January 2013 to November 2021 were used in the evaluation. In the absence of DOC data, the criteria were calculated considering a conservative assumption of DOC for the receiving water and effluent of 1 mg/L and 5 mg/L, respectively.

- (b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Aluminum is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations and requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, for the Secondary MCL the RPA was conducted based on the calendar annual average effluent aluminum concentrations. Calculating a maximum annual average concentration considers variability in the data, per 40 C.F.R. § 122.44(d)(1)(ii).

The maximum annual average effluent concentration for aluminum was 140 µg/L based on 9 samples collected between January 2013 and November 2021. Effluent aluminum is consistently less than the concentrations in the receiving water and below the Secondary MCL. Therefore, the Central Valley

Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of aluminum.

For the 2018 U.S. EPA NAWQC the RPA was conducted considering the maximum effluent concentration (MEC) for aluminum, which was 140 µg/L based on 9 samples collected between January 2013 and November 2021. Effluent aluminum is consistently less than the concentrations in the receiving water and below the NAWQC. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance of the narrative toxicity objective in the receiving water and the Facility is adequately controlling the discharge of aluminum.

iii. **Salinity**

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The U.S. EPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no U.S. EPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no U.S. EPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. Table F-7, below, contains various recommended levels for EC or TDS, sulfate, and chloride.

Table F-7. Salinity Water Quality Criteria/Objectives

Parameters	Secondary MCL Recommended Level.	Secondary MCL Upper Level	Secondary MCL Short-term Maximum	U.S. EPA NAWQC	Maximum Calendar Annual Average Effluent Concentration	Maximum Daily Effluent Concentration
EC (µmhos/cm) or TDS (mg/L)	EC 900 or TDS 500	EC 1,600 or TDS 1,000	EC 2,200 or TDS 1,500	N/A	EC: 597 or TDS: 363	EC: 740 or TDS: 450
Sulfate (mg/L)	250	500	600	N/A	23	23
Chloride (mg/L)	250	500	600	860 1-hour / 230 4-day	39	39

Table F-7 Notes:

- 1. Agricultural Water Quality Objectives.** Applicable agricultural water quality objectives vary. 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 Objectives, section 4.2.2.1.9 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. Secondary MCLs.** Secondary MCLs are for protection of public welfare and are stated as a recommended level, upper level, and a short-term maximum level.
- 3. Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
- 4. Electrical Conductivity or Total Dissolved Solids.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum, or when expressed as TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.
- 5. Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(b) **RPA Results.**

- (1) **Chloride.** As stated in Section IV.C.2.b, there is limited effluent and receiving water data from this permit term. Additional data outside of this permit term was analyzed to perform an analysis. Chloride concentrations in the effluent ranged from 12 mg/L to 54 mg/L, with an average of 51 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Angels Creek ranged from 1.8 mg/L to 2.8 mg/L, with an average of 2.3 mg/L, for 5 samples collected by the Discharger from July 2013 through November 2021.
- (2) **Electrical Conductivity or Total Dissolved Solids.** A review of the Discharger's monitoring reports shows an average effluent EC of 540 µmhos/cm, with a range from 290 µmhos/cm to 740 µmhos/cm. These levels do not exceed the Secondary MCL. The background receiving water EC averaged 106 µmhos/cm. The average TDS effluent concentration was 363 mg/L with concentrations ranging from 210 mg/L to 450 mg/L. These levels do not exceed the Secondary MCL. The background receiving water TDS ranged from 43 mg/L to 230 mg/L, with an average of 93 mg/L.
- (3) **Sulfate.** As stated in Section IV.C.2.b, there is limited effluent and receiving water data from this permit term. Additional data outside of this permit term was analyzed to perform an analysis. Sulfate concentrations in the effluent ranged from 4.2 mg/L to 28 mg/L, with an average of 23 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Angels Creek ranged from non-detect to 4.2 mg/L.

As discussed above, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. On 17 January 2020, certain amendments to the Basin Plan incorporating a Program to Control and Permit Salt Discharges to Surface and Groundwater (Salt Control Program) became effective. Other amendments became effective on 2 November 2020 when approved by the U.S. EPA. The Salt Control Program is a three-phased program, with each phase lasting 10 to 15 years. The Basin Plan requires all salt dischargers to comply with the provisions of the program. Two compliance pathways are available for salt dischargers during Phase 1.

The Phase 1 Compliance pathways are: 1) Conservative

Salinity Permitting Approach, which utilizes the existing regulatory structure and focuses on source control, conservative salinity limits on the discharge, and limits the use of assimilative capacity and compliance time schedules; and, 2) Alternative Salinity Permitting Approach, which is an alternative approach to compliance through implementation of specific requirements such as participating in the Salinity Prioritization and Optimization Study (P&O) rather than the application of conservative discharge limits.

The Discharger submitted a Notice of Intent for the Salinity Control Program indicating its intent to meet the Alternative Salinity Permitting Approach. This Order requires implementation of a Salinity Evaluation and Minimization Plan, participation in the Salinity P&O Study, and includes a performance-based trigger for EC consistent with the Alternative Salinity Permitting Approach.

- b. **Constituents with No Data or Insufficient Data.** – None.

- 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, nitrate plus nitrite, pathogens, and pH. WQBELs 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 2013 U.S. EPA National Ambient Water Quality Criteria (NAWQC) for the protection of freshwater aquatic life for total ammonia (2013 Criteria), recommends acute (1-hour average; criteria maximum concentration or CMC) and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC.

The 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including toxicity data on sensitive freshwater unionid mussels, non-pulmonary snails, and other freshwater organisms. The inclusion of new toxicity data for unionid mussels resulted in substantially more stringent criteria. In many cases, current wastewater treatment technologies are not capable of

complying with effluent limitations based on the more stringent criteria.

The Central Valley Clean Water Association (CVCWA) organized a coordinated effort for POTWs within the Central Valley Region, the Freshwater Mussel Collaborative Study for Wastewater Treatment Plants, to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria could be implemented in the Central Valley Region. Phase I, completed in June 2015, included a State of Knowledge Report developed by a consultant team consisting of Robertson-Bryan, Inc., Larry Walker Associates, and Pacific EcoRisk. The collaborative study involved policy and permitting discussions among representatives from the Central Valley Water Board, U.S. EPA, United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and regional mussel experts regarding the implementation of the 2013 Criteria in POTW NPDES permits. The discussions evaluated permitting approaches that provide reasonable protection of aquatic life beneficial uses, including protection of freshwater mussels.

The State of Knowledge Report explained that the species of freshwater mussels in waters within the Central Valley Region are different than what U.S. EPA used in the toxicity dataset for development of the 2013 Criteria. The State of Knowledge Report indicated that one resident freshwater mussel species was shown to not be as sensitive as the eastern mussel species used to derive the 2013 Criteria. However, the sensitivity of the other Central Valley Region mussel species was unknown.

Initial work under this project indicated the need to understand whether freshwater mussels are present or absent in POTW receiving waters in order to properly permit the discharge of ammonia in NPDES permits. Hence, a Phase II of the CVCWA study was conducted that developed and validated an effective environmental DNA (eDNA) method for determining the presence/absence of the three freshwater mussel genera in water bodies of the Central Valley. A Phase IIb of the study involved further study and application of the eDNA methodology.

CVCWA submitted the Phase IIc Freshwater Mussel Collaborative Study for Wastewater Treatment Plants: Ammonia Criteria Recalculation Final Report, dated January 2020 (Criteria Recalculation Report) developed by the same consultant team. The Criteria Recalculation Report provides toxicity studies

demonstrating all freshwater mussel species present in Central Valley Region waters are less sensitive than the eastern species used to develop the 2013 Criteria.

U.S. EPA developed the Guidelines for Deriving Numerical Aquatic Site-Specific Water Quality Criteria by Modifying National Criteria (EPA-600/S3-84-099 December 1984) that provides a Recalculation Procedure. U.S. EPA also developed the Revised Deletion Process for the Site-Specific Recalculation Procedure for Aquatic Life Criteria (EPA-823-R-13-001, April 2013) to guide the development of a site-specific toxicity dataset that is appropriate for deriving a site-specific aquatic life criterion, by modifying the national toxicity dataset for the pollutant of concern through correcting, adding, and/or deleting test results.

The Criteria Recalculation Report implemented U.S. EPA's Recalculation Procedure utilizing toxicity bioassays conducted on resident mussel species to replace the toxicity data for the eastern mussel species in the national dataset to develop site-specific ammonia criteria for waters within the Central Valley Region, including all surface waters in the Sacramento River, San Joaquin River, and Tulare Lake Basin Plans.

A draft Criteria Recalculation Report was provided to the Central Valley Water Board, U.S. EPA Region 9, U.S. EPA Office of Science and Technology, USFWS, and the Nature Conservancy. Comments were provided by Central Valley Water Board staff and U.S. EPA Office of Science and Technology. U.S. EPA agreed with the recalculation procedure for developing site-specific acute criterion. However, U.S. EPA recommended a more conservative approach for utilizing the acute-to-chronic ratio procedure for developing the site-specific chronic criterion. The final Criteria Recalculation Report addressed the comments and provided revised equations for the chronic criterion in Appendix D.

The Basin Plans' Policy for Application of Water Quality Objectives requires the Central Valley Water Board to consider, "...on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations...In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate

to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.”

The Central Valley Water Board finds that the site-specific ammonia criteria provided in the January 2020 Criteria Recalculation Report implement the Basin Plan’s narrative toxicity objective to protect aquatic life beneficial uses of the receiving water. This Order implements the site-specific acute and chronic criteria for ammonia provided by the January 2020 Criteria Recalculation Report, with the adjustments to the chronic criteria recommended by U.S. EPA.

Site-specific Criteria for Angels Creek. Similar to the U.S. EPA 2013 Criteria, the recalculated site-specific criteria developed in the Criteria Recalculation Report for the acute and chronic criteria are presented based on equations that vary according to pH and temperature. The pH and temperature speciation relationships developed by U.S. EPA were utilized without modification. Equations were developed for situations where freshwater mussels are present and where they are absent. In this case, for the Angels Creek freshwater mussels have been assumed to be present. In addition, the recalculated criteria include equations that provide enhanced protection for important salmonid species in the genus *Oncorhynchus*, that can be implemented for receiving waters where salmonid species are present. Because Angels Creek has a beneficial use of cold freshwater habitat and the presence of salmonids in the Angels Creek is well-documented, the criteria equations for waters where salmonids are present were used.

The acute (1-hour average) criterion or CMC was calculated using paired effluent pH and temperature data, collected during the period from 6 February 2019 and 4 November 2021. The most stringent CMC of 8.11 mg/L (ammonia as N) calculated using the paired effluent pH and temperature data has been implemented in this Order.

The chronic (30-day average) criterion or CCC was calculated using paired effluent pH and temperature data, collected during the period from 6 February 2019 and 4 November 2021. The most stringent 30-day rolling average CCC of 2.76 mg/L (ammonia as N) has been implemented in this Order.

The chronic (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 2.76 mg/L (ammonia as N),

the 4-day average concentration that should not be exceeded is 6.90 mg/L (ammonia as N).

- (b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that is harmful to aquatic life and exceed the Basin Plan narrative toxicity objective. Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. 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 WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTW's discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." With regard to POTW's, U.S. EPA recommends that, "POTW's should also be characterized for the possibility of chlorine and ammonia problems." (TSD, p. 50)

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that

converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan's narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the site-specific acute and chronic criteria for ammonia provided by the January 2020 Criteria Recalculation Report. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBELs are required.

- (c) **WQBELs.** The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. As described further in section IV.C.2.c of this Fact Sheet, a chronic aquatic toxicity dilution credit of 2.9:1 and an acute aquatic toxicity dilution credit of 2.4:1 has been granted for ammonia for calculation of WQBELs. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for ammonia of 10 mg/L and 23 mg/L, respectively.
- (d) **Plant Performance and Attainability.** The effluent limitations for ammonia are based on Facility performance and are unchanged from the previous Order. Therefore, the Central

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

ii. **Nitrate and Nitrite**

- (a) **WQO.** DDW has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

U.S. EPA has developed a primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

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

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

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "State implementation procedures might allow, or even require, a permit writer to determine reasonable

potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs 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, "POTWs 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 threat 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 stream. 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 WQBELs are required.

- (c) **WQBELs.** This Order contains an average monthly effluent limitation (AMEL) and average weekly effluent limitation (AWEL) for nitrate plus nitrite of 10 µg/L and 17 µg/L, respectively, based on the Basin Plan's narrative chemical constituent's 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 beneficial use of municipal and domestic supply.

- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum effluent nitrate concentration of 6.2 mg/L and the maximum effluent nitrite concentration of 0.89 mg/L are less than the applicable WQBELs. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

iii. **Pathogens**

- (a) **WQO.** DDW has developed reclamation criteria, 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 when the receiving water is used for irrigation of agricultural land and/or for contact recreation purposes. 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.** Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the Angels Creek. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBELs are required.

- (c) **WQBELs.** The Discharger developed a mitigated negative declaration in accordance with CEQA for its proposed discharge of treated municipal wastewater to Angels Creek. The mitigated negative declaration includes a mitigation measure that requires the wastewater discharged to Angels Creek during times of high stream flow and be treated to a level of treatment equivalent to Title 22 tertiary recycled water. 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 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 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 implement mitigation measures required in the Discharger's mitigated negative declaration 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 WQBELs for BOD5 and TSS are based on the technical capability of the tertiary process, which is necessary to implement mitigation measures required in the Discharger's mitigated negative declaration 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 for BOD5 and TSS of 10 mg/L, which is technically based on the capability of a tertiary system.

- (d) **Plant Performance and Attainability.** The Facility's treatment system is designed to meet a tertiary level of treatment and has been designed for the discharge to comply with the turbidity operational requirements and effluent limitations for total coliform organisms, BOD5, and TSS. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

iv. **pH**

- (a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "pH shall not be depressed below 6.5 nor raised above 8.5."
- (b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBELs are required.

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

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when

such data are not available...A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTW's discharging to contact recreational waters)." U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Based on 90 samples taken from 1 February 2019 to 30 November 2021, the maximum pH reported was 7.31 and the minimum was 6.75. The Facility did not exceed the instantaneous maximum pH effluent limitation, while discharging to Angels Creek. 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, WQBELs for pH are required in this Order.

- (c) **WQBELs.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Effluent pH ranged from 6.75 to 7.5. Therefore, the Central Valley Water Board concludes that immediate compliance with the effluent limitations is feasible.

v. **Cyanide**

- (a) **WQO.** The CTR includes a chronic criterion of 5.2 µg/L and an acute criterion of 22 µg/L for cyanide for the protection of freshwater aquatic life.
- (b) **RPA Results.** As stated in Section IV.C.2.b, there is limited effluent and receiving water data from this permit term and additional data outside of this permit term was analyzed. For the previous permit term, the MEC for cyanide was 6.6 ug/L (sample dated 16 December 2014) and WQBELs were included

in the previous order R5-2017-0063. For the current permit term, there were 3 non-detect effluent results and one upstream receiving water result of 3.6 ug/L between February 2019 and November 2021. Although the data do not exceed the CTR criteria, the Central Valley Water Board finds in accordance with Section 1.2 of the SIP that there is insufficient information to make a finding that the discharge does not have reasonable potential to cause or contribute to an exceedance of the CTR criteria in the receiving water. Furthermore, there is insufficient information to satisfy the exceptions to backsliding per federal antibacksliding regulations to remove effluent limits; therefore, the effluent limits for cyanide have been continued in this Order.

- (c) **WQBELs.** The receiving water contains assimilative capacity for cyanide; therefore, as described in section IV.C.2.c of this Fact Sheet, a chronic dilution credit of 4:1 was allowed in the development of the WQBELs for cyanide. This Order contains a final AMEL and MDEL for cyanide of 9.5 µg/L and 19 µg/L, based on the CTR aquatic life criteria.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that effluent results for cyanide were non-detect (during discharge to Angels Creek for the current permit term) and is less than the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. Zinc

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. These criteria for zinc are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for calculating the criteria. As described in section IV.C.2.e of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for zinc is 40 µg/L, as total recoverable.
- (b) **RPA Results.** As stated in Section IV.C.2.b, there is limited effluent and receiving water data from this permit term. Additional data outside of this permit term was analyzed to perform an analysis. The MEC for zinc was 53 µg/L (as total recoverable) based on nine samples collected during the discharge season between March 2011 and January 2022. The maximum observed upstream receiving water zinc concentration was ND (as total recoverable) based on five samples collected between November 2014 and January 2022. Therefore, zinc in the discharge has a reasonable potential to

cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life.

- (c) **WQBELs.** The receiving water contains assimilative capacity for zinc; therefore, as described in section IV.C.2.c of this Fact Sheet, an acute dilution credit of 9:1 and a chronic dilution credit of 018:1 was allowed in the development of the WQBELs for zinc. This Order contains a final AMEL and MDEL for zinc of 65 µg/L and 130 µg/L, based on the CTR aquatic life criteria.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 53 µg/L (during discharge to Angels Creek) is less than the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

- a. This Order contains WQBELs for acute toxicity, ammonia, BOD₅, cyanide, zinc, nitrate plus nitrite, pH, total coliform organisms, and TSS. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.5.b through e, below. See Attachment H for the WQBEL calculations.
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

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

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 MCLs.** For non-priority pollutants with primary MCL's to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the primary MCL and the AWEL is calculated using the AWEL/AMEL multiplier, where the AWEL multiplier is based on a 98th

percentile occurrence probability and the AMEL multiplier is from Table 2 of the SIP.

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

- (d) **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBELs are calculated in accordance with section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBELs 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 WQBELs 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, WQBELs are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$\begin{aligned}
 AMEL &= mult_{AMEL} \left[\min \left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right] \\
 MDEL &= mult_{MDEL} \left[\min \left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right] \\
 MDEL_{HH} &= \left(\frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}
 \end{aligned}$$

where:

- mult_{AMEL} = statistical multiplier converting minimum LTA to AMEL
- mult_{MDEL} = statistical multiplier converting minimum LTA to MDEL
- M_A = statistical multiplier converting acute ECA to LTA_{acute}
- M_C = statistical multiplier converting chronic ECA to LTA_{chronic}

**Summary of Water Quality-Based Effluent Limitations
Discharge Point No. 001**

Table F-8. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Average Monthly Effluent Limitations	Average Weekly Effluent Limitations	Maximum Daily Effluent Limitations	Instantaneous Minimum	Instantaneous Maximum
Cyanide, Total (as CN)	µg/L	9.5	--	19	--	--
Biochemical Oxygen Demand	mg/L	10	15	20	--	--
pH	units				6.5	8.5
Total Suspended Solids	mg/L	10	15	20	--	--
Zinc, Total Recoverable	µg/L	65	--	130	--	--
Ammonia Nitrogen, Total (as N)	mg/L	10	23	--	--	--
Nitrate Plus Nitrite, Total (as N)	mg/L	10	17	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2	23	--	--
Acute Toxicity	% Survival	--	70/90 (see Table Notes 1 and 2)	--	--	--

Table F-8 Notes:

1. 70 percent survival for any test.
2. 90 percent survival as median of three consecutive tests.

5. Whole Effluent Toxicity (WET)

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

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at section 3.1.20) The Basin Plan also states that, "...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...".

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

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

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

70%, minimum for any one bioassay; and

90%, median for any three consecutive bioassays.

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at section 3.1.20). Order R5-2017-0063 allowed a chronic whole effluent toxicity monitoring trigger of 16 TUc, which allows for a dilution credit of 16:1. This Order retains the chronic toxicity numeric trigger of 16 TUc. Therefore, chronic toxicity testing results exceeding 16 TUc demonstrate the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. The table below shows chronic WET results from testing performed by the Discharger in February 2019. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective.

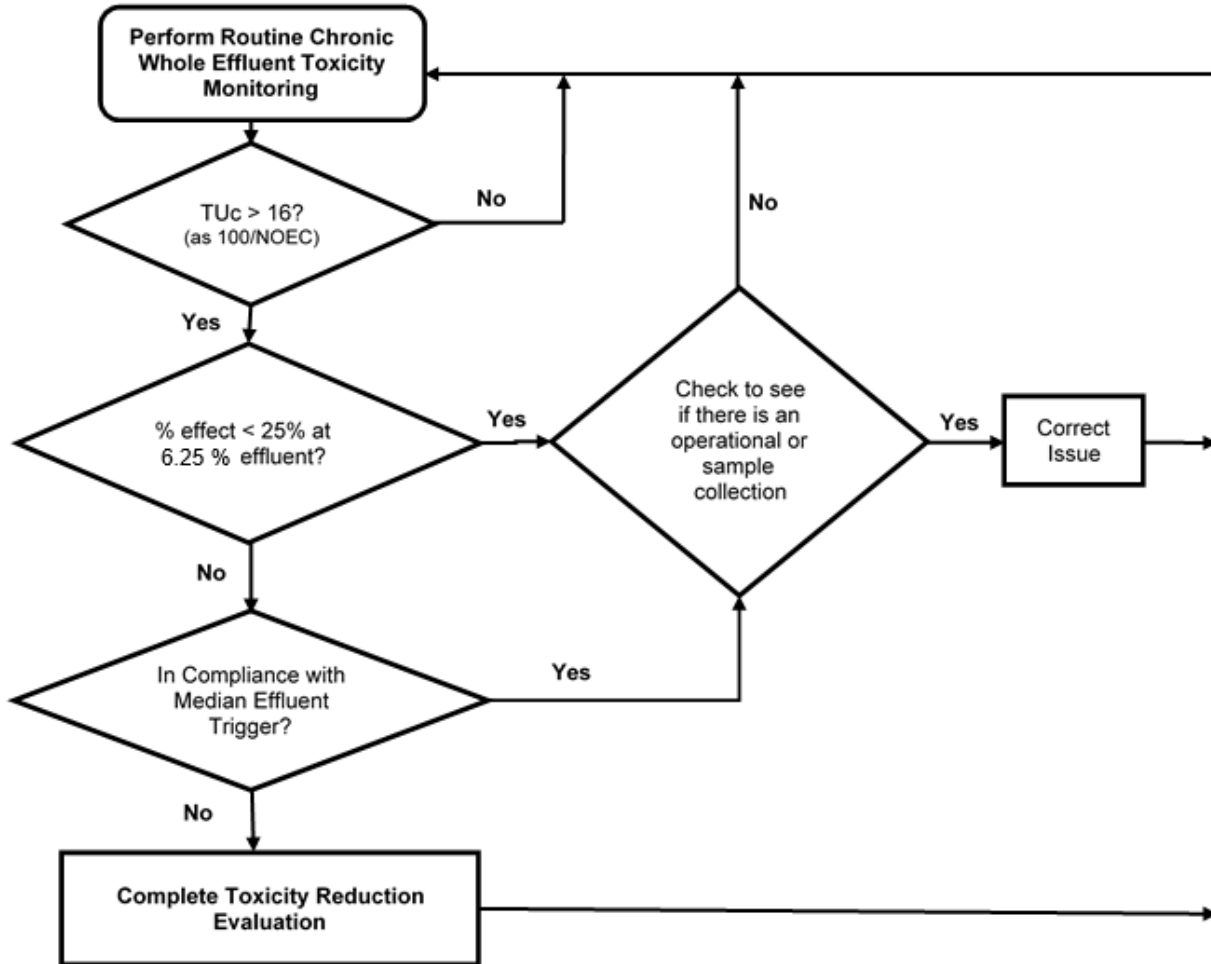
Table F-9. Chronic Whole Effluent Toxicity Testing Results

Date	Fathead Minnow (<i>Pimephales promelas</i>) Survival		Fathead Minnow (<i>Pimephales promelas</i>) Growth		Water Flea (<i>Ceriodaphnia dubia</i>) Survival		Water Flea (<i>Ceriodaphnia dubia</i>) Reproduction		Green Algae (<i>Selenastrum capricornutum</i>) Growth	
	TUc	Percent Effect	TUc	Percent Effect	TUc	Percent Effect	TUc	Percent Effect	TUc	Percent Effect
25 February 2019	<2	0.00	<2	0.00	<2	0.00	>32	19.23 (see table note 1)	<2	0.00

Table F-9 Notes: Percent effect at Instream Waste Concentration (IWC) of 6.25% effluent

RPA. Chronic toxicity testing results exceeding 16 chronic toxicity unit (TUc) (as 100/NOEC) with a percent effect at the instream waste concentration (IWC) of 6.25 percent effluent greater than 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 on 25 February 2019, the maximum chronic toxicity result was >32 TUc with a percent effect of 19.23 percent at the IWC. No accelerated monitoring was conducted because the TST analysis indicated the result passed at the IWC. Therefore, the discharge does not have reasonable potential to cause or contribute to an instream exceedance of the Basin Plan’s narrative toxicity objective. This Order retains the chronic toxicity monitoring trigger of 16 TUc, which allows for a dilution credit of 16:1.

Figure F-1. Chronic Toxicity Testing Flow Chart



D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

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

Mass-based effluent limitations were calculated based upon the design flow permitted in section IV.A.1. of this Order.

2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45 (d) requires average weekly and average monthly discharge limitations for POTW's unless impracticable. For cyanide and zinc average weekly effluent limitations have been replaced with maximum daily effluent limitations in accordance with section 1.4 of the SIP. Furthermore, for acute toxicity, pH, and total coliform organisms, weekly average effluent limitations 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).

All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for pH, ammonia, biochemical oxygen demand (BOD), and total suspended solids (TSS). The effluent limitations for these parameters may be less stringent than those in Order R5-2017-0063. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits "except in compliance with Section 303(d)(4)." CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.
 - i. For waters where standards are not attained, CWA section 303(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDLs or WLAs will assure the attainment of such water quality standards.
 - ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

The Angels Creek is considered an attainment water for pH, ammonia, BOD, and TSS because the receiving water is not listed as impaired on the 303(d) list for these parameters. 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. As discussed in section IV.D.4, below, relaxation or removal of the effluent

limits complies with federal and state antidegradation requirements. Thus, relaxation of effluent limitations for ammonia, BOD, and TSS from Order R5-2017-0063 meets the exception in CWA section 303(d)(4)(B).

4. Antidegradation Policies

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs 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 Anti-Degradation Policy. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order relaxes effluent limitations as follows: (1) removes maximum daily effluent limitations for BOD and TSS to be consistent with the Secondary Standards in 40 C.F.R. part 133; (2) removes the mass-based effluent limitations for ammonia, BOD, and TSS based on 40 C.F.R. section 122.45(d) and (f); and (3) relaxes the instantaneous pH effluent limit to be consistent with the Basin Plan Objective. The relaxation of these effluent limits will not result in a decrease in the level of treatment or control or a reduction in water quality. Since pH is not a pollutant and does not have mass, the increase in pH limit does not result in an increase in the mass of pollutants. Furthermore, both concentrations based AMEL's and AWEL's remain for ammonia, BOD and TSS, as well as a flow prohibition that limits the amount of flow that can be discharged to the receiving water during periods of discharge. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and permitted average dry weather flow by a conversion factor to determine the mass-based effluent limitations. The Central Valley Water Board finds, therefore, that the relaxation of the pH effluent limit, removal of maximum daily effluent limits for BOD and TSS, and removal of mass-based effluent limits for ammonia, BOD, and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of these effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD₅, pH, and TSS. Restrictions on BOD₅, pH, and TSS are discussed in Section IV.B.2. 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 water quality-based effluent limitations are applicable. The more stringent of these effluent limitations are implemented by this Order. These limitations are not more stringent than required by the CWA.

WQBELs 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 WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. Collectively, this Order’s restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

**Summary of Final Effluent Limitations
Discharge Point 001**

Table F-10. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations	Basis ¹
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	AMEL 10 AWEL 15	TTC
BOD	% removal	85	CFR
pH	standard units	Instantaneous Max 8.5 Instantaneous Min 6.5	BP, PB
Total Suspended Solids	mg/L	AMEL 10 AWEL 15	TTC
TSS	% removal	85	CFR
Cyanide, Total (as CN)	µg/L	AMEL 9.5 MDEL 19	CTR
Zinc, Total Recoverable	µg/L	AMEL 65 MDEL 130	CTR
Ammonia Nitrogen, Total (as N)	mg/L	AMEL 10 AWEL 23	NAWQC
Nitrate Plus Nitrite, Total (as N)	mg/L	AMEL 10 AWEL 17	MCL
Total Coliform Organisms	MN/100 mL	AWEL 2.2 ³ MDEL 23 ⁴	Title 22
Acute Toxicity	% Survival	70 ⁵ /90 ⁶	BP

Table F-10 Notes:

- DC – Based on the design capacity of the Facility.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 CFR part 133.
BP – Based on water quality objectives contained in the Basin Plan.

CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.

NAWQC – Based on U.S. EPA’s National Ambient Water Quality Criteria for the protection of freshwater aquatic life.

MCL – Based on the Primary Maximum Contaminant Level.

Title 22 – Based on State Water Board Division of Drinking Water Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

2. The average daily discharge shall not exceed 1.9 MGD
3. Applied as a 7-day median effluent limitation.
4. Not to be exceeded more than once in any 30-day period
5. 70 percent survival for any test.
6. 90 percent survival as median of three consecutive tests.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications

Land discharge specifications for the Facility are included in WDR Order 98-110

G. Recycling Specifications

Recycling specifications for the Facility are included in WDR Order 98-110

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 biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

a. **Bacteria.** On 7 August 2018 the State Water Board adopted Resolution No. 2018-0038 establishing Bacteria Provisions, which are specifically titled “Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Bacteria Provisions and a Water Quality Standards Variance Policy” and “Amendment to the Water Quality Control Plan for Ocean Waters of California—Bacteria Provisions and a Water Quality Standards Variance Policy.” The Bacteria Water Quality Objectives established in the

Bacteria Provisions supersede any numeric water quality objective for bacteria for the REC-1 beneficial use contained in a water quality control plan before the effective date of the Bacteria Provisions.

The Bacteria Water Quality Objectives correspond with the risk protection level of 32 illnesses per 1,000 recreators and use *E. coli* as the indicator of pathogens in freshwaters and enterococci as the indicator of pathogens in estuarine waters and ocean waters.

The Bacteria Provisions provide that where a permit, waste discharge requirement (WDR), or waiver of WDR includes an effluent limitation or discharge requirement that is derived from a water quality objective or other guidance to control bacteria (for any beneficial use) that is more stringent than the Bacteria Water Quality Objective, the Bacteria Water Quality Objective would not be implemented in the permit, WDR, or waiver of WDR. This Order includes effluent limitations and discharge requirements equivalent to the DDW Title 22 disinfected tertiary reclamation criteria that are more stringent than the Statewide Bacteria Objectives. Therefore, the Statewide Bacteria Objectives have not been implemented in this Order.

B. Groundwater

Groundwater specifications for the Facility are included in WDR Order 98-110.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

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

B. Special Provisions

1. Reopener Provisions

- a. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 17 January 2020, certain Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley became effective. Other provisions subject to U.S. EPA approval became effective on 2 November 2020, when approved by U.S. EPA. As the Central Valley Water Board moves forward to implement those provisions that are now in effect, this Order may be amended or modified to incorporate new or modified requirements necessary for implementation of the Basin Plan Amendments. More information regarding these Amendments can be found on the [Central Valley Salinity Alternatives for Long-Term Sustainability \(CV-SALTS\) web page](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/):
(https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)
- b. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- c. **Ultraviolet Light (UV) Disinfection Operating Specifications.** 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.e.

2. Special Studies and Additional Monitoring Requirements – Not Applicable

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Basin Plan includes a Salt Control Program for discharges to groundwater and surface water. The Salt Control Program is a phased approach to address salinity in the Central Valley Region. During Phase I the focus will be on conducting a Prioritization and Optimization (P&O) Study to provide information for subsequent phases of the Salt Control Program. During Phase I, the Salt Control Program includes two compliance pathways for dischargers to choose; a Conservative Salinity Permitting Approach and an Alternative Salinity Permitting Approach.

The Discharger submitted a notice to intent for the Salt Control Program on 17 December 2021 indicating its intent to meet the Alternative Salinity Permitting Approach. Under the Alternative Permitting Approach the Basin Plan requires dischargers implement salinity minimization measures to maintain existing salinity levels, and participate in the P&O Study. The Discharger's NOI demonstrated adequate participation in the P&O and this Order requires continued participation to meeting the requirements of the Alternative Salinity Permitting Approach. This Order also requires continued implementation of the Discharger's Salinity Evaluation and Minimization Plan and includes a performance-based salinity trigger to ensure salinity levels do not increase. In accordance with the Basin Plan, the salinity trigger was developed based on existing facility performance, and considers possible temporary increases that may occur due to water conservation and/or drought.

4. Construction, Operation, and Maintenance Specifications

- a. **Treatment Plant Operating Requirements.** In order to protect public health and receiving waters from overflow of treated or partially treated wastewater, this provision requires precluding public contact with wastewater, in and around the outfall, by construction of fences, signs, and other acceptable alternatives.
- b. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity 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.

- c. **Ultraviolet (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DDW reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The 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 the 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 offices recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of lamp sleeves, as well as, include provisions that specify minimum delivered UV dose that must be maintained (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%, 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 (POTWs) – Not Applicable

6. Other Special Provisions

- a. **Disinfection Requirements.** Consistent with previous Order R5-2017-0063, this Order requires wastewater to be oxidized, coagulated, filtered, and adequately disinfected consistent with DDW reclamation criteria,

CCR, Title 22, division 4, chapter 3 (Title 22), or equivalent. The disinfection requirements are discussed in detail above in Section IV.C.3, Determining the Need for WQBELs (see Pathogens).

7. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD5 and TSS reduction requirements). The monitoring frequencies for flow (continuous), BOD5 (weekly), pH (daily), and TSS (weekly) have been retained from Order R5-2017-0063.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for discharge location EFF-001 (daily), flow (continuous), dilution ratio (daily), Holman Reservoir volume remaining (daily), BOD5 (weekly), total suspended solids (weekly), pH (continuous), cyanide (monthly), lead (monthly) zinc (monthly), ammonia (weekly), dissolved oxygen (continuous), electrical conductivity (monthly), hardness (monthly), nitrate plus nitrite (monthly), temperature (continuous), and total dissolved solids (monthly) have been retained from Order R5-2017-0063 to determine compliance with effluent limitations, where applicable, and characterize the effluent for these parameters. Effluent monitoring for dissolved organic carbon (monthly) has been added to calculate the 2018 U.S. EPA National Ambient Water Quality Criteria for aluminum for the next permit renewal.
3. 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.” The DDW accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

4. 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 sections 13370, subd. (c), 13372, 13377.). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code section 13372, subd. (a).) Lab accreditation is not required for field tests such as tests for color, odor, turbidity, pH, temperature, dissolved oxygen, electrical conductivity, and disinfectant residual. The holding time requirements are 15 minutes for dissolved oxygen, and pH, and immediate analysis required for temperature. (40 C.F.R. section 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

To implement the future statewide toxicity provisions, the Discharger shall report the TST results of the instream waste stream at the 100% effluent for both acute and chronic toxicity tests.

1. **Acute Toxicity.** 96-hour bioassay testing is required annually when discharging to Angels Creek to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required annually when discharging to Angels Creek in order to demonstrate compliance with the numeric chronic toxicity effluent trigger.

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 at Monitoring Location RSW-001 and RSW-002 for flow (continuous), pH (weekly), dissolved oxygen (weekly), electrical conductivity (monthly), hardness (monthly), temperature (weekly), and turbidity (weekly) have been retained from Order R5-2017- 063 to determine compliance with applicable receiving water limitations and characterize the receiving water for these parameters. Monitoring for total dissolved solids has been removed since the Discharger is monitoring monthly for electrical conductivity at 25°C.

2. Groundwater – Not Applicable

Groundwater monitoring requirements for the Facility are included in MRP Order 98-110.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring requirements for the Facility are included in MRP Order 98-110

2. Water Supply Monitoring

a. Water supply monitoring has been removed in this Order, because it is not necessary to evaluation compliance with the Order.

3. UV Disinfection System Monitoring

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by the DDW), and the NWRI, Guidelines

4. Land Discharge Monitoring

Land discharge monitoring requirements for the Facility are included in MRP Order 98-110.

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Persons

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through posting the Notice of Public Hearing at the Facility, at City Hall, and at the Angels Camp Post Office. In addition, the notice of public hearing and tentative order were posted on the Central Valley Water Board's website.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website (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 6 May 2022.

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: **10 June 2022**

Time: **10:30 a.m.**

Location: Online AND 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 California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

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

Or by email at waterqualitypetitions@waterboards.ca.gov

[Instructions on how to file a petition for review](http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instructions.shtml)

(http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instructions.shtml) are available on the Internet.

E. Information and Copying

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

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Matt Richter at matthew.richter@waterboards.ca.gov.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum	µg/L	140	120	147	234	147	--	--	--	--	No
Ammonia Nitrogen Total (as N)	mg/L	5.68	0.11	2.76	8.11	2.76	--	--	--	--	Yes
Chloride	mg/L	54	2.8	230	860	230				250	No
Cyanide	µg/L	6.6	0.90	5.2	22	5.2	700	220,000	--	150	Yes
Electrical Conductivity	µmhos/cm	576	113	900	--	--	--	--	--	900	No
Lead, Total Recoverable	µg/L	0.13	0.36	2.0	52	2.0	--	--	--	15	No
Nitrate plus Nitrite, Total (as N)	mg/L	6.2	0.18	10	--	--	--	--	--	10	Yes
Sulfate	mg/L	0.89	<0.005	1.0	--	--	--	--	--	1.0	No
Zinc, Total Recoverable	mg/L	23	4.2	250	--	--	--	--	--	250	Yes
Total Dissolved Solids	µg/L	53	3	49	49	49	7400	26,000	--	5,000	No

General Note: All inorganic concentrations are given as a total concentration.

Abbreviations used in this table:

- 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)

CITY OF ANGELS
WASTEWATER TREATMENT PLANT

Basin Plan = Numeric Site-Specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available
ND = Non-detect

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ATTACHMENT H – CALCULATION OF WQBELS

HUMAN HEALTH WQBELS CALCULATIONS

Parameter	Units	Criteria	Mean Background Concentration	Effluent CV¹	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Nitrate plus Nitrite, Total (as N)	mg/L	10	0.18	0.6	--	2.01	1.55	10	--	17

Abbreviations used in this table:

- CV = Coefficient of Variation
- MDEL = Maximum Daily Effluent Limitation
- AMEL = Average Monthly Effluent Limitation
- MDEL = Maximum Daily Effluent Limitation
- AWEL = Average Weekly Effluent Limitation

ATTACHMENT H – CALCULATION OF WQBELS

AQUATIC LIFE WQBELS CALCULATIONS

Parameter	Units	CMC Criteria	CCC Criteria	B	Effluent CV ¹	CMC Dilution Factor	CCC Dilution Factor	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	5.6	3.1	0.5	0.6	2.9	2.4	0.3	6.4	0.7	6.5	1.5	2.6	--	10	23	--
Cyanide, Total (as CN)	µg/L	22	5.2	0.9	0.6	0	4	0.3	7.1	0.5	6.1	1.6	--	2.7	9.5	--	19
Zinc, Total Recoverable	µg/L	40	40	4.4	0.6	9	18	0.32	42	0.53	130	1.6	--	3.1	65	--	130

Table Notes:

1. Coefficient of Variation (CV) was established in accordance with Section 1.4 of 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.

Abbreviations used in this table:

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
 CMC = Criterion Maximum Concentration (CTR or NTR)
 CCC = Criterion Continuous Concentration (CTR or NTR)
 CV = Coefficient of Variation (established in accordance with section 1.4 of the SIP)
 ECA = Effluent Concentration Allowance
 LTA = Aquatic Life Calculations – Long-Term Average

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MDEL = Maximum Daily Effluent Limitation
AMEL = Average Monthly Effluent Limitation
MDEL = Maximum Daily Effluent Limitation
AWEL = Average Weekly Effluent Limitation

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