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

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# ORDER R5-2016-XXXX

## NPDES NO. CA0077712

## WASTE DISCHARGE REQUIREMENTS
## CITY OF AUBURN
## WASTEWATER TREATMENT PLANT
## PLACER COUNTY

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

**Table 1. Discharger Information**

| | |
|---|---|
| **Discharger** | City of Auburn |
| **Name of Facility** | City of Auburn Wastewater Treatment Plant, Auburn |
| **Facility Address** | 10441 Ophir Road |
| | Auburn, CA 95603 |
| | Placer County |

**Table 2. Discharge Location**

| Discharge Point | Effluent Description | Discharge Point Latitude (North) | Discharge Point Longitude (West) | Receiving Water |
|---|---|---|---|---|
| 001 | Treated Municipal Wastewater | 38° 53' 13" N | 121° 06' 21" W | Auburn Ravine |

**Table 3. Administrative Information**

| | |
|---|---|
| This Order was adopted on: | **XX June 2016** |
| This Order shall become effective on: | **1 August 2016** |
| This Order shall expire on: | **31 July 2021** |
| The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than: | **30 January 2021** |
| The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows: | **Major discharge** |

I, PAMELA C. CREEDON, 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 **XX June 2016**.

_____
**PAMELA C. CREEDON**, Executive Officer

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## I. FACILITY INFORMATION

Information describing the City of Auburn 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:

**D. 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.

**E. 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.

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

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

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

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

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

**I. 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 R5-2010-0090-01 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

## III. DISCHARGE PROHIBITIONS

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

**B.** The 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.** The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

## 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, with compliance measured at Monitoring Locations described below and as described in the Monitoring and Reporting Program, Attachment E:

a. The Discharger shall maintain compliance at EFF-001 with the effluent limitations specified in Table 4:

**Table 4. Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | | |
|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| ***Conventional Pollutants*** | | | | | | |
| Biochemical Oxygen Demand (5-day @ 20°C) | mg/L | 10 | 15 | 20 | -- | -- |
| | lbs/day [1] | 140 | 210 | 280 | -- | -- |
| Total Suspended Solids | mg/L | 10 | 15 | 20 | -- | -- |
| | lbs/day [1] | 140 | 210 | 280 | -- | -- |

| Parameter | Units | Effluent Limitations | | | | |
|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| pH | standard units | -- | -- | -- | 6.5 | 8.0 |
| ***Non-Conventional Pollutants*** | | | | | | |
| Ammonia Nitrogen, Total (as N) | mg/L | 2.0 | 4.3 | -- | -- | -- |
| | lbs/day [1] | 28 | 60 | -- | -- | -- |
| Nitrate plus Nitrite (as N) | mg/L | 10 | 16 | -- | -- | -- |
| ***Priority Pollutants*** | | | | | | |
| Bis (2-ethylhexyl) phthalate | µg/L | 1.8 | -- | 5.6 | -- | -- |
| Copper, Total Recoverable | µg/L | 17 | -- | 33 | -- | -- |

[1] Mass-based effluent limitations are based on a permitted average dry weather flow of 1.67 MGD.

b. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 1.67 MGD measured at EFF-001.

c. **Percent Removal.** The average monthly percent removal of $BOD_5$ and TSS shall not be less than 85 percent measured at EFF-001.

d. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste measured at EFF-001 shall be no less than:

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

e. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge measured at EFF-001.

f. **Mercury, Total Recoverable.** The total annual mass discharge of total mercury shall not exceed 0.010 lbs/year measured at EFF-001.

g. **Total Coliform Organisms.** Effluent total coliform organisms collected at UVS-001 shall not exceed:

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

**2. Interim Effluent Limitations – Not Applicable**

**B. Land Discharge Specifications**

**a. Equalization Pond Operating Requirements.**

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

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

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

(b) Weeds shall be minimized.

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

iii. Freeboard shall not be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

iv. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas (or property owned by the Discharger).

v. As a means of discerning compliance with the operating specification contained in section VI.C.4.e.iv above, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.

vi. Ponds shall not have a pH less than 6.5 or greater than 8.5.

### C. Recycling Specifications – Not Applicable

## V. RECEIVING WATER LIMITATIONS

### A. Surface Water Limitations

The discharge shall not cause the following in Auburn Ravine:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen:**

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass**;**

   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.

9. **Pesticides:**

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA 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 131.12.);

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

   f. Pesticides to be present in concentrations 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.

10. **Radioactivity:**

   a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

   b. Radionuclides to be present in excess of the MCL's specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

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

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

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. **Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

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

17. **Turbidity.**

   a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;

   b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 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

Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the Facility to contain waste constituents in concentrations in excess of natural background quality or that listed below, whichever is greater:

1. Total coliform organisms median of 2.2 MPN/100 mL over any 7-day period.
2. Chemical constituents in concentrations that adversely affect beneficial uses, including:

**Table 5. Groundwater Limitations**

| Constituent | Units | Limitation |
|---|---|---|
| Ammonia, Total (as NH4) | mg/L | 0.5 |
| Total Dissolved Solids [1] | mg/L | 450 |
| Nitrate plus Nitrite (as N) | mg/L | 10 |

[1] A cumulative constituent comprised of dissolved matter consisting mainly of inorganic salts, small amounts of organic matter, and dissolved gases (e.g., ammonia, bicarbonate alkalinity, boron, calcium, chloride, copper, iron, magnesium, manganese, nitrate, phosphorus, potassium, sodium, silica, sulfate, and total alkalinity).

## 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 USEPA 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 USEPA 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. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).

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

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

p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other

enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

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

## B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, 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. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. **Bis (2-ethylhexyl) phthalate**. In previous Order R5-2010-0090-01, there was no effluent limitation for bis (2-ethylhexyl) phthalate due to limited data. However, previous Order R5-2010-0090-01 did require additional monthly monitoring for it. The previous Order also required that the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of bis (2-ethylhexyl) phthalate. During the term of the previous Order, the maximum

effluent concentration (MEC) for bis (2-ethylhexyl) phthalate was 6.3 µg/L, which exceeds the CTR criterion. Based on a review of the Discharger's bis (2-ethylhexyl) phthalate monthly monitoring results, this Order may be reopened for modification or removal of the effluent limitation and requirements for bis (2-ethylhexyl) phthalate.

e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. (For the discharge to Auburn Ravine, there is a site-specific WER for copper of 3.52 and an incomplete WER for aluminum.) 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.

g. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

h. **Diazinon Proposed Basin Plan Amendment.** Diazinon is a pesticide that has been banned for residential use, however, it sometimes is still detected in surface waters. There are existing Water Quality Objectives in the Basin Plan for diazinon in the Sacramento River. In addition, Central Valley Water Board staff is developing a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. Currently approved by the Central Valley Water Board and SWRCB but not the Office of Administrative Law or USEPA, there is a proposed basin plan amendment which would apply the Water Quality Objective for diazinon to Auburn Ravine. This Order will be reopened to modify diazinon effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

i. **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.

j. **Dilution/Mixing Zone Study.** In order to allow dilution credits for the calculation of WQBELs, the Discharger must submit an approved Dilution/Mixing Zone Study, in accordance with a workplan submitted to and approved by the Regional Water Board, which meets all of the requirements of Section 1.4.2.2 of the SIP. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor.

**2. Special Studies, Technical Reports, and Additional Monitoring Requirements**

a. **Toxicity Reduction Evaluation Requirements.** For compliance with the Basin Plan's narrative toxicity objective and narrative chronic toxicity effluent limitation, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP section V. Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the numeric toxicity monitoring trigger during accelerated monitoring established 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. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation. Results from the Discharger's fourth quarter 2015 effluent three species chronic toxicity testing indicated a reduction in reproduction of *Ceriodaphnia dubia* exposed to 100 percent effluent from those exposed to laboratory control water. Since the same pattern has been exhibited at other wastewater treatment facilities that employ ultraviolet disinfection systems, the Discharger may conduct a Toxicity Evaluation Study for *Ceriodaphnia dubia* if toxicity is $\leq$ 2 TUc, individually or as part of a coordinated group effort with other dischargers that evaluate low level and intermittent toxicity in effluent disinfected by a UV disinfection system. If the chronic toxicity is $\geq$ 2.1 TUc, then the Discharger shall conduct accelerated monitoring. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation, or a Toxicity Evaluation Study.

i. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications, or, if the toxicity is $\leq$ 2 TUc the Discharger may conduct a Toxicity Evaluation Study approved by the Executive Officer. If the Discharger persues conducting accelerated monitoring, then the Discharger shall initiate a TRE or a Toxicity Evaluation Study to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is > 1 TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iii. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14-days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four chronic toxicity tests conducted once every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) 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 continue accelerated monitoring until four consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE or if the toxicity is ≤2 TUc a Toxicity Evaluation Study to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. To expedite corrective action, within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan or a Toxicity Evaluation Study Work Plan to the Central Valley Water Board including, at minimum:

(1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

(2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

(3) A schedule for these actions.

For longer-term corrective action, within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1].

**b. Groundwater Evaluation.** In a Notice of Violation (NOV) dated 6 November 2015, the Compliance and Enforcement Section of the Central Valley Water Board informed the City of Auburn (Discharger) that the discharge of waste from the Facility appears to have impacted groundwater with total coliform organisms, ammonia, total dissolved solids, and nitrate plus nitrite. The NOV required that the Discharger submit a technical report by 1 January 2016 that contains (a) a proposal to evaluate the extent of groundwater contamination for total coliform organisms, ammonia, TDS, and nitrogen using either temporary probes or permanent monitoring wells, and (b) an engineering feasibility study (EFS) evaluating the corrective actions which could be implemented to remediate and prevent any future contamination.

On 18 December 2015, the Discharger submitted the report titled *City of Auburn Technical Report, Wastewater Treatment Plant, Groundwater Issues/Engineering*

[1] See the Fact Sheet (Attachment F section VI.B.2.a.) for a list of USEPA guidance documents that must be considered in development of the TRE Workplan.

*Feasibility Study*. In a letter dated 4 April 2016, the Compliance and Enforcement Section of the Central Valley Water Board required the Discharger to begin groundwater monitoring for ammonia, total dissolved solids, and nitrate plus nitrite on a quarterly basis and to submit the following:

i. A Sampling and Analysis Plan by 1 May 2016;

ii. A proposal to evaluate the nature and extent of the groundwater limitation violations for ammonia, total dissolved solids, and nitrate plus nitrite by 1 June 2016; and

iii. A summary report regarding total coliform organisms by 1 February 2017.

The Discharger shall implement the 4 April 2016 letter and any future directives from the Central Valley Water Board.

**3. Best Management Practices and Pollution Prevention**

a. **Salinity Evaluation and Minimization Plan.**

i. The Discharger shall continue to implement the existing salinity evaluation and minimization plan to address sources of salinity from the Facility. The Discharger shall provide annual reports discussing the effectiveness of implementing the salinity evaluation and minimization plan, Discussion of the plan effectiveness shall include the following:

- A description of the measures that have been implemented to address salinity in the discharge;
- An assessment of the effectiveness of the implemented measures; and
- The cost of implementing those measures.

The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

ii. The salinity evaluation and minimization plan shall be reviewed and updated if the effluent annual average calendar year electrical conductivity concentration is greater than 700 µmhos/cm. If the plan must be updated, it shall be submitted **by 1 April following the calendar year in which the effluent electrical conductivity annual average of 700 µmhos/cm was exceeded**.

**4. Construction, Operation and Maintenance Specifications**

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

i. 2 NTU as a daily average;

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

iii. 10 NTU, at any time.

b. **Ultraviolet (UV) Disinfection System Operating Specifications.** The UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:

i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter ($mJ/cm^2$).

ii. **UV Transmittance**. The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at 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.

vi. **Total Coliform Organisms.** Effluent total coliform organisms collected at UVS-001 shall not exceed:

a) 2.2 most probable number (MPN) per 100 mL, as a 7-day median;

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

c) 240 MPN/100 mL at any time.

This specification is identical to Effluent Limitation IV.A.1.h.

**5. Special Provisions for Municipal Facilities (POTW's Only)**

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

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

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

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

controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

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

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

iv. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

v. **By 1 December 2016,** the Discharger shall submit a biosolids use or disposal plan to the Central Valley Water Board. The plan shall describe at a minimum:

(a) Sources and amounts of biosolids generated annually.

(b) Location(s) of on-site storage and description of the containment area.

(c) Plans for ultimate disposal. For landfill disposal, include the present classification of the landfill; and the name and location of the landfill.

b. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, Statewide General WDR's for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDR's. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

**6. Other Special Provisions**

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

b. **Mussels Study**. CVCWA has initiated group studies for POTWs discharging to bodies of water that support or could support sensitive mussel populations. As a POTW that discharges to a stream that may support sensitive mussels, Central Valley Water Board staff encourages the Discharger to join in CVCWA's mussel studies.

**7. Compliance Schedules**

a. The Discharger shall evaluate groundwater conditions as required in the 4 April 2016 letter from the Central Valley Water Board as follows:

| Task | Compliance Date |
|---|---|
| i. Submit a Sampling and Analysis Plan (Special Provision VI.C.2.b) | **1 May 2016** |
| ii. Submit a proposal to evaluate the nature and extent of the groundwater limitation violations for ammonia, total dissolved solids, and nitrate plus nitrite (Special Provision VI.C.2.b) | **1 June 2016** |
| iii. Submit a summary report regarding total coliform organisms | **1 February 2017** |

b. The Discharger shall submit updates of the existing Salinity Evaluation and Minimization Plan as follows:

| Task | Compliance Date |
|---|---|
| i. Submit annual reports regarding the existing Salinity Evaluation and Minimization Plan. (Special Provision VI.C.3.b) | **1 February, annually** |
| Ii, Submit Updated Salinity Evaluation and Minimization Plan, if applicable. (Special Provision VI.C.3.b) | **1 April of the calendar year in which the effluent electrical conductivity of 700 µmhos/cm annual average was exceeded** |

## VII. COMPLIANCE DETERMINATION

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

**B. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.j).** The procedures for calculating mass loadings are as follows:

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

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

**C. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.b).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

**D. Total Coliform Organisms Effluent Limitations (Section IV.A.1.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.

**E. Mass Effluent Limitations.** The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:

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

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

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

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
   a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
   b. A sample result is reported as 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.

**G. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.k)**, Compliance with the accelerated monitoring and TRE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

# ATTACHMENT A – DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

**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.

**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).

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

measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

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

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

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

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

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

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

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

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

**Pollution Prevention**
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to,

input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or Central Valley Water Board.

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

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

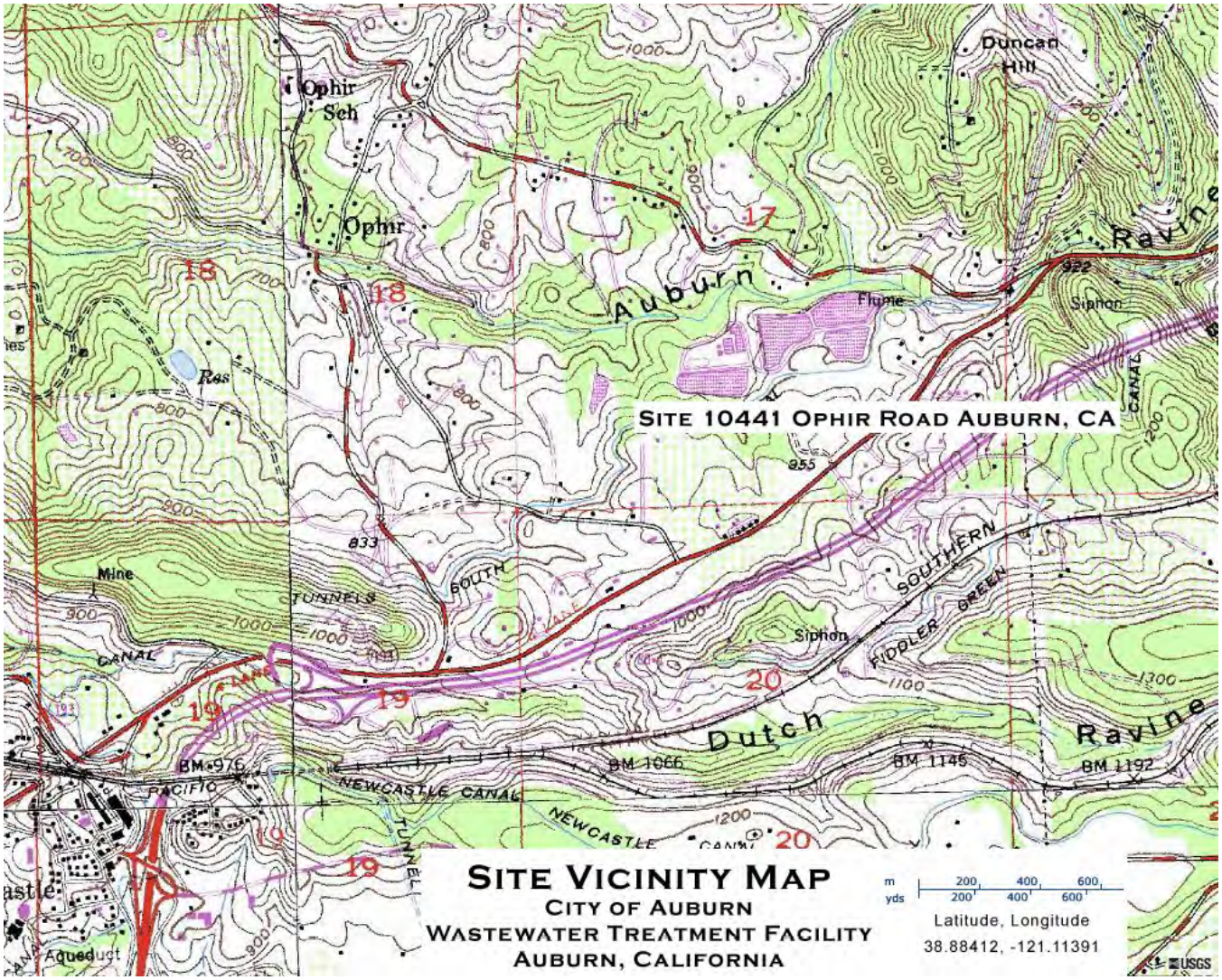
**Standard Deviation ($\sigma$)**
Standard Deviation is a measure of variability that is calculated as follows:

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

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

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

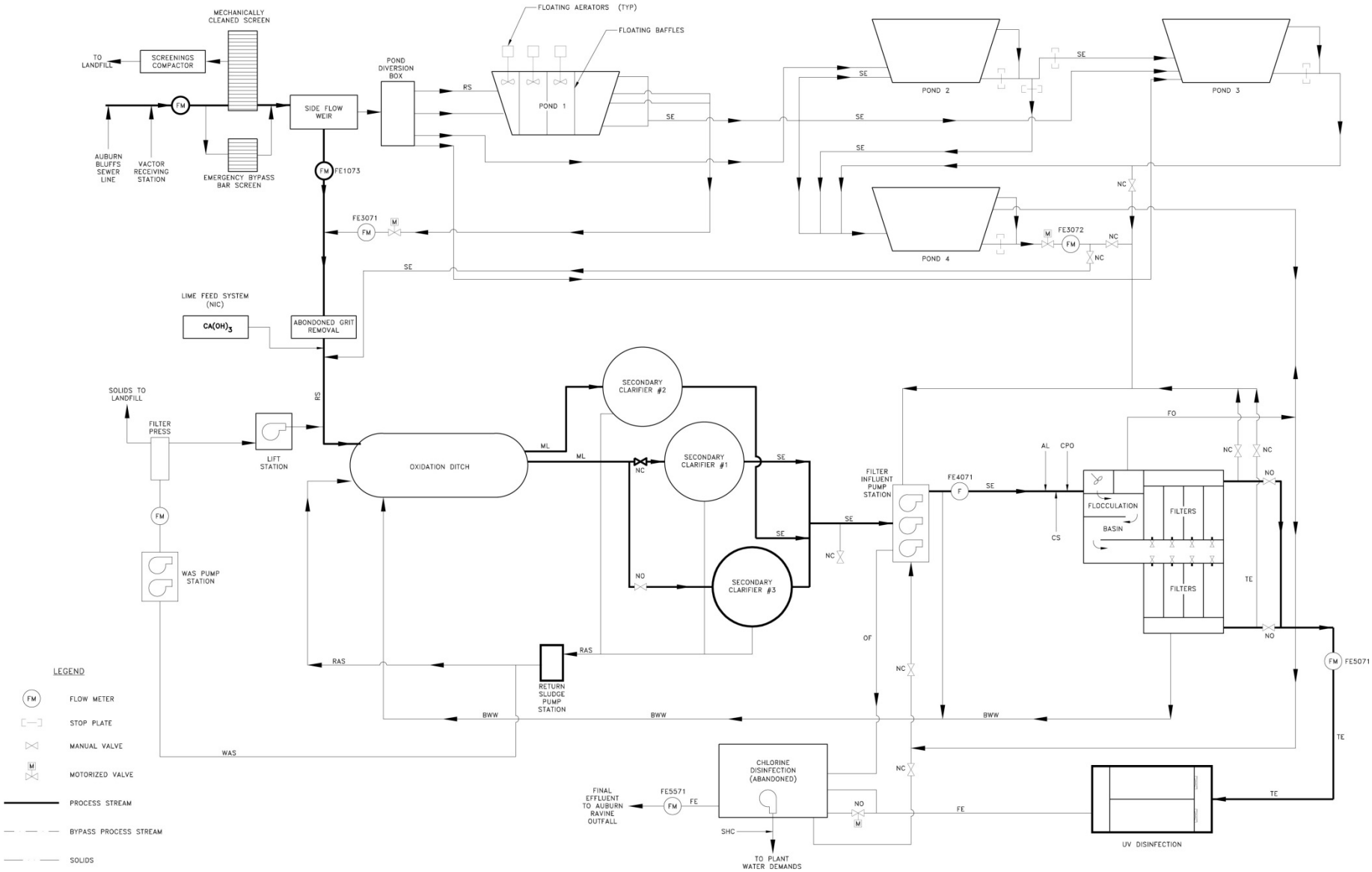
## ATTACHMENT B-1 – MAP



## ATTACHMENT B-2 – FACILITY PHOTO

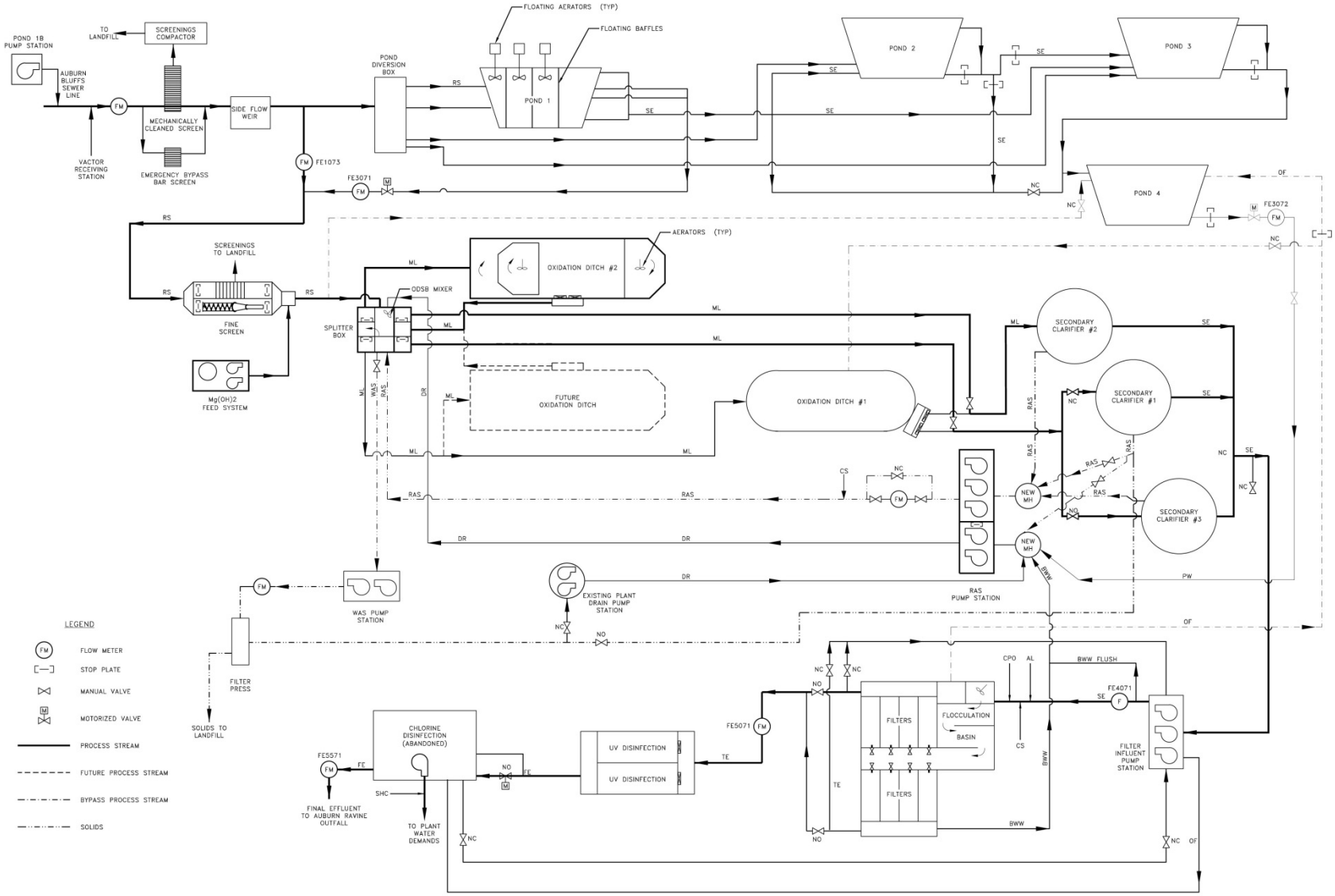
**Existing City of Auburn WWTP**

## ATTACHMENT C-1 – FLOW SCHEMATIC FOR EXISTING FACILITY




**Process Flow Diagram for the Existing City of Auburn WWTP**

## ATTACHMENT C-2 – FLOW SCHEMATIC FOR PROPOSED UPGRADED FACILITY




**Process Flow Diagram for the Proposed City of Auburn WWTP Upgrades**

# ATTACHMENT D – STANDARD PROVISIONS

## I. STANDARD PROVISIONS – PERMIT COMPLIANCE

### A. Duty to Comply

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

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

### B. Need to Halt or Reduce Activity Not a Defense

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

### C. Duty to Mitigate

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

### D. Proper Operation and Maintenance

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

### E. Property Rights

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

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

### F. Inspection and Entry

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

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

**G. Bypass**

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

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

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

### H. Upset

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

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

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

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

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

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

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

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

## II. STANDARD PROVISIONS – PERMIT ACTION

### A. General

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

**B. Duty to Reapply**

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

**C. Transfers**

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

## III. STANDARD PROVISIONS – MONITORING

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

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

## IV. STANDARD PROVISIONS – RECORDS

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

**B.** Records of monitoring information shall include:

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

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

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

## V. STANDARD PROVISIONS – REPORTING

### A. Duty to Provide Information

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

### B. Signatory and Certification Requirements

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

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

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

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

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

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

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

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

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my

inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

**C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

**D. Compliance Schedules**

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

**E. Twenty-Four Hour Reporting**

1. The Discharger shall report any noncompliance that 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 written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission 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. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

**F. Planned Changes**

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)
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.§ 122.41(l)(1)(iii).)

**G. Anticipated Noncompliance**

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

**H. Other Noncompliance**

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

**I. Other Information**

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

## VI. STANDARD PROVISIONS – ENFORCEMENT

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

## VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

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

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

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)

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

# ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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# ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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

## I. GENERAL MONITORING PROVISIONS

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

**B.** 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 certified for such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW; formerly the Department of Public Health). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, and temperature, such analyses performed by a noncertified 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, and temperature 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 USEPA 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.** Laboratories analyzing monitoring samples shall be certified byDDW, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

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

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

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

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

## II. MONITORING LOCATIONS

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

**Table E-1. Monitoring Station Locations**

| Discharge Point Name | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| -- | INF-001 | A location where a representative sample of the influent into the Facility can be collected<br>Latitude: 38° 53’ 13” Longitude: 121° 06’ 21” |
| 001 | EFF-001 | Downstream from the last connection through which wastes can be admitted into the outfall.<br>Latitude: 38° 53’ 13” Longitude: 121° 06’ 21” |
| -- | RSW-001 | In Auburn Ravine, 50 feet upstream of the point of discharge<br>Latitude: 38° 53’ 13” Longitude: 121° 06’ 21” |
| -- | RSW-002 | In Auburn Ravine, 100 feet downstream of the point of discharge<br>Latitude: 38° 53’ 13” Longitude: 121° 06’ 21” |
| -- | PND-001A | Location where a representative sample of wastewater can be collected in Pond 1A. |
| -- | PND-001B | Location where a representative sample of wastewater can be collected in Pond 1B. |
| -- | PND-002 | Location where a representative sample of wastewater can be collected in Pond 2. |
| -- | PND-003 | Location where a representative sample of wastewater can be collected in Pond 3. |
| -- | PND-004 | Location where a representative sample of wastewater can be collected in Pond 4. |
| -- | GW-001 | Groundwater monitoring well (identified as MW-1 in the Discharger’s Groundwater Monitoring Reports). |
| -- | GW-002 | Groundwater monitoring well (identified as MW-2 in the Discharger’s Groundwater Monitoring Reports). |
| -- | GW-003 | Groundwater monitoring well (identified as MW-3 in the Discharger’s Groundwater Monitoring Reports). |
| -- | GW-004 | Groundwater monitoring well (identified as MW-4 in the Discharger’s Groundwater Monitoring Reports). |
| -- | GW-005 | Groundwater monitoring well (identified as MW-5 in the Discharger’s Groundwater Monitoring Reports). |
| -- | BIO-001 | A location where a representative sample of biosolids can be obtained |

| Discharge Point Name | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| -- | SPL-001 | A location where a representative sample of the municipal water supply can be obtained. |
| -- | FIL-001 | Monitoring of the filter effluent to be measured immediately downstream of the filters prior to the UV disinfection system |
| -- | UVS-001 | A location where a representative sample of wastewater can be collected immediately downstream of the ultraviolet light (UV) disinfection system |

The North latitude and West longitude information in Table 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-001as follows:

**Table E-2. Influent Monitoring**

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

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR part 136; or by methods approved by the Central Valley Water Board or the State Water Board.
[2] 24-hour flow proportional composite.

## IV. EFFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location EFF-001

1. The Discharger shall monitor treated effluent at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

**Table E-3. Effluent Monitoring**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow | MGD | Meter | Continuous | -- |
| ***Conventional Pollutants*** | | | | |
| Biochemical Oxygen Demand (5-day @ 20° C) | mg/L | 24-hr Composite [2] | 1/Week | [1] |
| | lbs/day | Calculate | 1/Week | -- |
| Total Suspended Solids | mg/L | 24-hr Composite [2] | 1/Week | [1] |
| | lbs/day | Calculate | 1/Week | -- |
| pH | standard units | Meter | Continuous | [1, 3] |
| ***Priority Pollutants*** | | | | |
| Bis (2-ethylhexyl) phthalate | µg/L | Grab | 1/Month | [1, 5, 6, 7] |

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Copper, Total Recoverable | µg/L | 24-hr Composite [2] | 1/Year | [1, 7, 10, 11] |
| Mercury, Total Recoverable | µg/L | Grab | 1/Quarter | [7, 12] |
| Priority Pollutants and Other Consituents of Concern | See Section IX.E | See Section IX.E | See Section IX.E | [1, 7] |
| ***Non-Conventional Pollutants*** | | | | |
| Ammonia Nitrogen, Total (as N) | mg/L | Grab | 2/Week | [1, 3, 9] |
| | lbs/day | Calculate | 2/Week | -- |
| Diazinon | µg/L | 24-hr Composite [2] | 1/Quarter | [1] |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Week | [1] |
| Hardness, Total (as $CaCO_3$) | mg/L | Grab | 1/Month | [1, 10] |
| Nitrate Nitrogen, Total (as N) | mg/L | Grab | 1/Month | [1, 13] |
| Nitrite Nitrogen, Total (as N) | mg/L | Grab | 1/Month | [1, 13] |
| Nitrate plus Nitrite | mg/L | Calculate | 1/Month | -- |
| Temperature | °F/°C | Grab | 3/Week | [1, 3, 4] |
| Total Coliform Organisms | MPN/100 mL | -- | -- | [14] |
| Total Dissolved Solids | mg/L | Grab | 1/Month | [1] |
| Turbidity | NTU | Meter | Continuous | [1] |
| Whole Effluent Toxicity (see Section V. below) | -- | -- | -- | -- |

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[2] 24-hour flow proportional composite.
[3] pH and temperature shall be recorded at the time of ammonia sample collection.
[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-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.
[5] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
[6] Sampling and analysis of Bis (2-ethylhexyl) phthalate shall be conducted using ultra-clean techniques that eliminate the possibility of sample contamination.
[7] For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, Table E-10).
[8] Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
[9] Concurrent with whole effluent toxicity monitoring
[10] Hardness samples shall be collected concurrently with metals (copper) samples.
[11] Results of copper analyses shall be submitted with the Self-Monitoring Report (SMR) for the month the sample was collected and resubmitted with the December SMR.
[12] Total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a reporting limit of 0.05 ng/L for methyl mercury and 0.5 ng/L for total mercury.
[13] Monitoring for nitrite and nitrate shall be conducted concurrently.
[14] See Filtration System and Ultraviolet Light (UV) Disinfection System Monitoring, Section IX.C below.

## 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 following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform quarterly acute toxicity testing, concurrent with effluent ammonia sampling.
2. *Sample Types* – 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 conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency –* The Discharger shall perform quarterly three species chronic toxicity testing.
2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.
3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. *Test Species* – 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 accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. 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 control may be used as the diluent.

8. 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**

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

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

9. *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 Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

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

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

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

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

   b. The statistical methods used to calculate endpoints;

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

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

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

Additionally, the monthly self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

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

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

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

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

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

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

## VI. LAND DISCHARGE MONITORING REQUIREMENTS

### A. Equalization Ponds

#### 1. Monitoring Locations PND-001A, PND-001B, PND-002, PND-003, and PND-004

**Table E-5. Equalization Pond Monitoring Requirements**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Freeboard | Feet | Measure | 1/Week | -- |
| Dissolved Oxygen | mg/L | Grab | 1/Week | [2, 3] |
| Electrical Conductivity @ 25°C [1] | µmhos/cm | Grab | 1/Week | [2] |
| Odors | -- | Observation | 1/Week | -- |
| pH | Standard units | Grab | 1/Week | [2, 3] |

[1] To be measured vertically from the water surface to the lowest point of overflow.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[3] A hand-held field meter may be used, provided the meter utilizes a USEPA-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.

## VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

## VIII. RECEIVING WATER MONITORING REQUIREMENTS

### A. Surface Water Monitoring Locations RSW-001 and RSW-002

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

**Table E-6. Receiving Water Monitoring Requirements**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow [1] | MGD | Meter | Continuous | -- |
| ***Conventional Pollutants*** | | | | |
| pH | Standard units | Grab | 1/Week [3] | [2] |
| Fecal Coliform Organisms | MPN/100 mL | Grab | 1/Quarter | [2] |
| ***Priority Pollutants*** | | | | |
| Priority Pollutants and Other Constituents of Concern [5] | See Section IX.E | See Section IX.E | See Section IX.E | [2, 6, 7, 8, 9] |
| ***Non-Conventional Pollutants*** | | | | |
| Dissolved Oxygen | mg/L | Grab | 1/Week | [2] |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Week | [2] |
| Hardness, Total (as $CaCO_3$) | mg/L | Grab | 1/Month [9] | [2] |
| Temperature | °F/°C | Grab [4] | 1/Week [3] | [2] |
| Turbidity | NTU | Grab | 1/Week | [2] |

[1] Monitoring required at RSW-001 only.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[3] Monitoring for pH and temperature shall be conducted concurrently with effluent ammonia sampling.
[4] A hand-held field meter may be used, provided the meter utilizes a USEPA-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
[5] See List of Priority Pollutants and Other Pollutants of Concern in section IX.E. and Table E-10 of Attachment E.
[6] Priority pollutants shall be sampled once per calendar quarter in the year 2019 at RSW-001 and shall be conducted concurrently with effluent monitoring for priority pollutants. See section IX.E. and Table E-10 of Attachment E for more detailed requirements related to performing the priority pollutant monitoring.
[7] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.
[8] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the receiving water, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected pollutant.
[9] Samples shall be collected on the same date as the effluent metals and priority pollutant samples.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Surface Water Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:

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

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

### B. Groundwater Monitoring Locations GW-001, GW-002, GW-003, GW-004, and GW-005

1. Prior to construction and/or beginning a sampling program of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of Monitoring Wells GW-001, GW-002, GW-003, GW-004, and GW-005) and shall be sampled and analyzed according to the schedule below. All samples shall be collected using approved EPA methods and a Sampling and Analysis Plan approved by Central Valley Water Board staff. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

2. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring at GW-001, GW-002, GW-003, GW-004, GW-005, and any new groundwater monitoring wells shall include, at a minimum, the following:

**Table E-7. Groundwater Monitoring Requirements**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Depth to Groundwater | ±0.01 feet | Measurement | 1/Quarter | -- |
| Groundwater Elevation [1] | ±0.01 feet | Calculated | 1/Quarter | -- |
| Gradient | feet/feet | Calculated | 1/Quarter | -- |
| Gradient Direction | degrees | Calculated | 1/Quarter | -- |
| Electrical Conductivity @ 25°C | µmhos/cm | Grab | 1/Quarter | [2] |
| Total Dissolved Solids | mg/L | Grab | 1/Quarter | [2] |
| pH | standard units | Grab | 1/Quarter | [2] |
| Total Coliform Organisms | MPN/100 mL | Grab | 1/Quarter | [2] |
| Total Nitrogen | mg/L | Grab | 1/Quarter | [2] |
| Nitrate Nitrogen, Total (as N) | mg/L | Grab | 1/Quarter | [2] |
| Ammonia (as NH4) | mg/L | Grab | 1/Quarter | [2] |
| Metals [3] | µg/L | Grab | 1/Year | [2] |
| Standard Minerals [4] | µg/L | Grab | 1/Year | [2] |

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

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

[3] Metals shall include at least the following: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, vanadium, and zinc.

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

## IX. OTHER MONITORING REQUIREMENTS

### A. Biosolids

#### 1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance*

*Document*, August 1989, and tested for priority pollutants listed in 40 C.F.R. part 122, Appendix D, Tables II and III (excluding total phenols).

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

c. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

## B. Municipal Water Supply

### 1. Monitoring Location SPL-001

a. The Discharger shall monitor the municipal water supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Municipal water supply samples shall be collected at approximately the same time as effluent samples.

**Table E-8. Municipal Water Supply Monitoring Requirements**

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

[1] If the water supply is from more than one source, the total dissolved solids and electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.

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

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

### 1. Monitoring Locations FIL-001 and UVS-001

a. The Discharger shall monitor the filtration system at Monitoring Location FIL-001 and the UV disinfection system at Monitoring Locations UVS-001 as follows:

**Table E-9. Filtration System and UV Disinfection System Monitoring Requirements**

| Parameter | Units | Sample Type | Monitoring Location | Minimum Sampling Frequency |
|---|---|---|---|---|
| Turbidity | NTU | Meter | FIL-001 | Continuous [1, 2] |
| Flow | MGD | Meter | UVS-001 | Continuous [1] |
| Total Coliform Organisms | MPN/100mL | Grab | UVS-001 | 3/Week |
| UV Transmittance | Percent (%) | Meter | UVS-001 | Continuous [1] |
| UV Dose [3] | mJ/cm [4] | Calculated | N/A | Continuous [1] |
| Number of UV banks in operation | Number | Observation | N/A | Continuous [1] |

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than 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. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are

out of service and water is being disinfected.

[2] Report daily average and maximum turbidity.

[3] 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.

[4] mJ/cm = millijoule per centimeter

## D. Effluent and Receiving Water Characterization in 2019

1. **Quarterly Monitoring.** Quarterly samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in Table E-10, below. Quarterly monitoring shall be conducted during 2019 (4 consecutive samples, evenly distributed throughout the year) and the results of such monitoring shall be submitted to the Central Valley Water Board with the monthly self-monitoring reports. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

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

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

**Table E-10. Effluent and Receiving Water Characterization Monitoring**

| Parameter | Units | Effluent Sample Type | Maximum Reporting Level[1] |
|---|---|---|---|
| 2- Chloroethyl vinyl ether | µg/L | Grab | 1 |
| Acrolein | µg/L | Grab | 2 |
| Acrylonitrile | µg/L | Grab | 2 |
| Benzene | µg/L | Grab | 0.5 |
| Bromoform | µg/L | Grab | 0.5 |
| Carbon Tetrachloride | µg/L | Grab | 0.5 |
| Chlorobenzene | µg/L | Grab | 0.5 |
| Chloroethane | µg/L | Grab | 0.5 |
| Chloroform | µg/L | Grab | 2 |
| Chloromethane | µg/L | Grab | 2 |
| Dibromochloromethane | µg/L | Grab | 0.5 |
| Dichlorobromomethane | µg/L | Grab | 0.5 |
| Dichloromethane | µg/L | Grab | 2 |
| Ethylbenzene | µg/L | Grab | 2 |
| Hexachlorobenzene | µg/L | Grab | 1 |
| Hexachlorobutadiene | µg/L | Grab | 1 |
| Hexachloroethane | µg/L | Grab | 1 |
| Methyl bromide (Bromomethane) | µg/L | Grab | 1 |
| Naphthalene | µg/L | Grab | 10 |
| Parachlorometa cresol | µg/L | Grab | -- |
| Tetrachloroethene | µg/L | Grab | 0.5 |
| Toluene | µg/L | Grab | 2 |
| trans-1,2-Dichloroethylene | µg/L | Grab | 1 |
| Trichloroethene | µg/L | Grab | 2 |
| Vinyl chloride | µg/L | Grab | 0.5 |
| Methyl-tert-butyl ether (MTBE) | µg/L | Grab | -- |
| 1,1,1-Trichloroethane | µg/L | Grab | 0.5 |

| Parameter | Units | Effluent Sample Type | Maximum Reporting Level[1] |
|---|---|---|---|
| 1,1,2-Trichloroethane | µg/L | Grab | 0.5 |
| 1,1-dichloroethane | µg/L | Grab | 0.5 |
| 1,1-dichloroethylene | µg/L | Grab | 0.5 |
| 1,2-dichloropropane | µg/L | Grab | 0.5 |
| 1,3-dichloropropylene | µg/L | Grab | 0.5 |
| 1,1,2,2-tetrachloroethane | µg/L | Grab | 0.5 |
| 1,2,4-trichlorobenzene | µg/L | Grab | 1 |
| 1,2-dichoroethane | µg/L | Grab | 0.5 |
| 1,2-dichlorobenzene | µg/L | Grab | 0.5 |
| 1,3-dichlorobenzene | µg/L | Grab | 0.5 |
| 1,4-dichlorobenzene | µg/L | Grab | 0.5 |
| 1,2-Benzanthracene | µg/L | Grab | 5 |
| 1,2-Diphenylhydrazine | µg/L | Grab | 1 |
| 2-Chlorophenol | µg/L | Grab | 5 |
| 2,4-Dichlorophenol | µg/L | Grab | 5 |
| 2,4-Dimethylphenol | µg/L | Grab | 2 |
| 2,4-Dinitrophenol | µg/L | Grab | 5 |
| 2,4-Dinitrotoluene | µg/L | Grab | 5 |
| 2,4,6-Trichlorophenol | µg/L | Grab | 10 |
| 2,6-Dinitrotoluene | µg/L | Grab | 5 |
| 2-Nitrophenol | µg/L | Grab | 10 |
| 2-Chloronaphthalene | µg/L | Grab | 10 |
| 3,3'-Dichlorobenzidine | µg/L | Grab | 5 |
| 3,4-Benzofluoranthene | µg/L | Grab | 10 |
| 4-Chloro-3-methylphenol | µg/L | Grab | 5 |
| 4,6-Dinitro-2-methylphenol | µg/L | Grab | 10 |
| 4-Nitrophenol | µg/L | Grab | 10 |
| 4-Bromophenyl phenyl ether | µg/L | Grab | 10 |
| 4-Chlorophenyl phenyl ether | µg/L | Grab | 5 |
| Acenaphthene | µg/L | Grab | 1 |
| Acenaphthylene | µg/L | Grab | 10 |
| Anthracene | µg/L | Grab | 10 |
| Benzidine | µg/L | Grab | 5 |
| Benzo(a)pyrene (3,4-Benzopyrene) | µg/L | Grab | 2 |
| Benzo(g,h,i)perylene | µg/L | Grab | 5 |
| Benzo(k)fluoranthene | µg/L | Grab | 2 |
| Bis(2-chloroethoxy) methane | µg/L | Grab | 5 |
| Bis(2-chloroethyl) ether | µg/L | Grab | 1 |
| Bis(2-chloroisopropyl) ether | µg/L | Grab | 10 |
| Bis(2-ethylhexyl) phthalate[2] | µg/L | Grab | 5 |
| Butyl benzyl phthalate | µg/L | Grab | 10 |
| Chrysene | µg/L | Grab | 5 |
| Di-n-butylphthalate | µg/L | Grab | 10 |
| Di-n-octylphthalate | µg/L | Grab | 10 |
| Dibenzo(a,h)-anthracene | µg/L | Grab | 0.1 |
| Diethyl phthalate | µg/L | Grab | 10 |
| Dimethyl phthalate | µg/L | Grab | 10 |
| Fluoranthene | µg/L | Grab | 10 |
| Fluorene | µg/L | Grab | 10 |
| Hexachlorocyclopentadiene | µg/L | Grab | 5 |

| Parameter | Units | Effluent Sample Type | Maximum Reporting Level[1] |
|---|---|---|---|
| Indeno(1,2,3-c,d)pyrene | µg/L | Grab | 0.05 |
| Isophorone | µg/L | Grab | 1 |
| N-Nitrosodiphenylamine | µg/L | Grab | 1 |
| N-Nitrosodimethylamine | µg/L | Grab | 5 |
| N-Nitrosodi-n-propylamine | µg/L | Grab | 5 |
| Nitrobenzene | µg/L | Grab | 10 |
| Pentachlorophenol | µg/L | Grab | 1 |
| Phenanthrene | µg/L | Grab | 5 |
| Phenol | µg/L | Grab | 1 |
| Pyrene | µg/L | Grab | 10 |
| Aluminum | µg/L | 24-hr Composite[3] | -- |
| Antimony | µg/L | 24-hr Composite[3] | 5 |
| Arsenic | µg/L | 24-hr Composite[3] | 10 |
| Asbestos | µg/L | 24-hr Composite[3] | -- |
| Beryllium | µg/L | 24-hr Composite[3] | 2 |
| Cadmium | µg/L | 24-hr Composite[3] | 0.5 |
| Chromium (III) | µg/L | 24-hr Composite[3] | 50 |
| Chromium (VI) | µg/L | 24-hr Composite[3] | 5 |
| Copper | µg/L | 24-hr Composite[3] | 25 |
| Cyanide[4] | µg/L | 24-hr Composite[3] | 5 |
| Iron | µg/L | 24-hr Composite[3] | -- |
| Lead | µg/L | 24-hr Composite[3] | 0.5 |
| Mercury[4] | µg/L | Grab | 0.5 |
| Manganese | µg/L | 24-hr Composite[3] | -- |
| Nickel | µg/L | 24-hr Composite[3] | 20 |
| Selenium | µg/L | 24-hr Composite[3] | 5 |
| Silver | µg/L | 24-hr Composite[3] | 1 |
| Thallium | µg/L | 24-hr Composite[3] | 1 |
| Zinc | µg/L | 24-hr Composite[3] | 20 |
| 4,4'-DDD | µg/L | 24-hr Composite[3] | 0.05 |
| 4,4'-DDE | µg/L | 24-hr Composite[3] | 0.05 |
| 4,4'-DDT | µg/L | 24-hr Composite[3] | 0.01 |
| alpha-Endosulfan | µg/L | 24-hr Composite[3] | 0.02 |
| alpha-Hexachlorocyclohexane (BHC) | µg/L | 24-hr Composite[3] | 0.01 |
| Aldrin | µg/L | 24-hr Composite[3] | 0.005 |
| beta-Endosulfan | µg/L | 24-hr Composite[3] | 0.01 |
| beta-Hexachlorocyclohexane | µg/L | 24-hr Composite[3] | 0.005 |
| Chlordane | µg/L | 24-hr Composite[3] | 0.1 |
| delta-Hexachlorocyclohexane | µg/L | 24-hr Composite[3] | 0.005 |
| Dieldrin | µg/L | 24-hr Composite[3] | 0.01 |
| Endosulfan sulfate | µg/L | 24-hr Composite[3] | 0.01 |
| Endrin | µg/L | 24-hr Composite[3] | 0.01 |
| Endrin Aldehyde | µg/L | 24-hr Composite[3] | 0.01 |
| Heptachlor | µg/L | 24-hr Composite[3] | 0.01 |
| Heptachlor Epoxide | µg/L | 24-hr Composite[3] | 0.02 |
| Lindane (gamma-Hexachlorocyclohexane) | µg/L | 24-hr Composite[3] | 0.5 |
| PCB-1016 | µg/L | 24-hr Composite[3] | 0.5 |
| PCB-1221 | µg/L | 24-hr Composite[3] | 0.5 |
| PCB-1232 | µg/L | 24-hr Composite[3] | 0.5 |

| Parameter | Units | Effluent Sample Type | Maximum Reporting Level[1] |
|---|---|---|---|
| PCB-1242 | µg/L | 24-hr Composite[3] | 0.5 |
| PCB-1248 | µg/L | 24-hr Composite[3] | 0.5 |
| PCB-1254 | µg/L | 24-hr Composite[3] | 0.5 |
| PCB-1260 | µg/L | 24-hr Composite[3] | 0.5 |
| Toxaphene | µg/L | 24-hr Composite[3] | -- |
| 2,3,7,8-TCDD (Dioxin) | µg/L | 24-hr Composite[3] | -- |
| Ammonia (as N)[4] | mg/L | 24-hr Composite[3] | -- |
| Boron | µg/L | 24-hr Composite[3] | -- |
| Chloride | mg/L | 24-hr Composite[3] | -- |
| Flow[4] | MGD | Meter | -- |
| Hardness (as $CaCO_3$)[4] | mg/L | Grab | -- |
| Foaming Agents (MBAS) | µg/L | 24-hr Composite[3] | -- |
| Mercury, Methyl | ng/L | Grab | -- |
| Nitrate (as N)[4] | mg/L | Grab | -- |
| Nitrite (as N)[4] | mg/L | Grab | -- |
| pH[4] | Std Units | Grab | -- |
| Phosphorus, Total (as P) | mg/L | 24-hr Composite[3] | -- |
| Specific conductance (EC)[4] | µmhos/cm | 24-hr Composite[3] | -- |
| Sulfate | mg/L | 24-hr Composite[3] | -- |
| Sulfide (as S) | mg/L | 24-hr Composite[3] | -- |
| Sulfite (as $SO_3$) | mg/L | 24-hr Composite[3] | -- |
| Temperature[4] | $^oC$ | Grab | -- |
| Total Dissolved Solids (TDS)[4] | mg/L | 24-hr Composite[3] | -- |

## 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 Web site

(http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS Web site 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.

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

**Table E-11. Monitoring Periods and Reporting Schedule**

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period | SMR Due Date |
|---|---|---|---|
| Continuous | Permit effective date | All | Submit with monthly SMR |
| 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 |
| 2/Week | Permit effective date | Sunday through Saturday | Submit with monthly SMR |
| 3/Week | Permit effective date | Sunday through Saturday | Submit with monthly SMR |
| 1/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<br>1 April through 30 June<br>1 July through 30 September<br>1 October through 31 December | 1 May<br>1 August<br>1 November<br>1 February of following year |
| 1/Year | Permit effective date | 1 January through 31 December | 1 February of following year |
| 4/5 years | Permit effective date | 1/Quarter in 2019 | 1 May 2019<br>1 August 2019<br>1 November 2019<br>1 February of 2020 |

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

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

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

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

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

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

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

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

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

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

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

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

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

c. The Discharger shall attach all laboratory analysis sheets, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed.

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

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

b. **Mass Loading Limitations**. For $BOD_5$, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

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

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

c. **Removal Efficiency ($BOD_5$ and TSS).** The Discharger shall calculate and report the percent removal of $BOD_5$ and TSS in the SMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.

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

e. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall calculate and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.

f. **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 Limitations and Discharge Requirements.

g. **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.

h. **Copper Analytical Results**. The Discharger shall submit the results of copper analyses with the Self-Monitoring Report (SMR) for the month the sample was collected and resubmit the results with the December SMR.

i. **Groundwater Monitoring Results.** All quarterly groundwater monitoring reports shall be completed under the direction of a registered engineer or professional geologist, and shall contain the stamp and signature of the professional.

## C. Discharge Monitoring Reports (DMR's)

1. The Discharger shall electronically certify and submit Discharge Monitoring Reports (DMRs) together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at: <http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring>

## D. Other Reports

1. **Special Study Reports and Progress Reports**. As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

**Table E-12. Reporting Requirements for Special Provisions Reports**

| Special Provision | Reporting Requirements |
|---|---|
| Sampling and Analysis Plan<br>(Special Provision VI.C.2.b) | **1 May 2016** |
| A proposal to evaluate the nature and extent of the groundwater limitation violation for ammonia, total dissolved solids, and nitrate plus nitrite<br>(Special Provision VI.C.2.b) | **1 June 2016** |
| Summary Report regarding total coliform organisms in groundwater<br>(Special Provision VI.C.2.b) | **1 February 2017** |
| Salinity Evaluation and Minimization Plan Annual Reports<br>(Special Provision VI.C.3.a) | **1 February, annually** |
| Updated Salinity Evaluation and Minimization Plan, if applicable.<br>(Special Provision VI.C.3.b) | **1 April of the calendar year in which the effluent electrical conductivity of 700 µmhos/cm was exceeded** |

2. The Discharger shall report the results of any acute and chronic toxicity testing, TRE/TIE, and Toxicity Evaluation Study required by Special Provisions – VI.C.2. The Discharger shall report the progress in satisfaction of compliance schedule dates specified in Special Provisions – VI.C.7. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. Within 60 days of permit adoption, the Discharger shall submit a report outlining reporting levels (RL's), method detection limits (MDL's), and analytical methods for the constituents listed in tables E-2, E-3, E-5, E-6, E-7, E-8, and E-9. In addition, no less than 6 months prior to conducting the effluent and receiving water characterization monitoring required in Section IX. D, the Discharger shall submit a report outlining RL's, MDL's, and analytical methods for the constituents listed in Table E-15. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (ML's) contained in

Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RL's, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. **Table E-10** provides required maximum reporting levels in accordance with the SIP.

4. **Annual Operations Report.** By **28 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

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

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

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

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the 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.

# 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 includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

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

### I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

**Table F-1. Facility Information**

| | |
|---|---|
| WDID | 5A31NP00042 |
| CIWQS Facility Place ID | 206733 |
| Discharger | City of Auburn |
| Name of Facility | City of Auburn Wastewater Treatment Plant |
| Facility Address | 10441 Ophir Road |
| | Auburn, CA 95603 |
| | Placer County |
| Facility Contact, Title and Phone | Bernie Schroeder, Public Works Director, (530) 823-4211 |
| Authorized Person to Sign and Submit Reports | Bernie Schroeder, Public Works Director, (530) 823-4211 |
| Mailing Address | City of Auburn, 1225 Lincoln Way, Room 3, Auburn, CA 95603 |
| Billing Address | Same as mailing address |
| Type of Facility | Publicly Owned Treatment Works (POTW) |
| Major or Minor Facility | Major |
| Threat to Water Quality | 1 |
| Complexity | A |
| Pretreatment Program | Not Applicable |
| Recycling Requirements | Not Applicable |
| Facility Permitted Flow | 1.67 million gallons per day (MGD), average dry weather flow |
| Facility Design Flow | 1.67 MGD, average dry weather flow |
| Watershed | Auburn Hydrologic Sub-Area of the American River Hydrologic Unit |
| Receiving Water | Auburn Ravine |
| Receiving Water Type | Inland surface water |

**A.** The City of Auburn (hereinafter Discharger) is the owner of the City of Auburn Wastewater Treatment Plant (hereinafter Facility), a Publicly-Owned Treatment Works (POTW). The Facility is contract operated by CH2M Hill.

**B.** 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.

**C.** The Facility discharges wastewater to Auburn Ravine, a water of the United States, tributary to the Sacramento River within the Auburn Hydrologic Sub-Area of the American River Hydrologic Area. The Discharger was previously regulated by Order R5-2010-0090-01 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0077712 adopted on 22 September 2010, amended on 3 February 2011 and expired on 1 September 2015. Attachment B provides a map of the area around the Facility and an overhead photograph of the treatment system. Attachment C provides a flow schematic of the Facility.

**D.** Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

**E.** The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its WDR's and NPDES permit on 2 March 2015. The application was deemed complete on 12 May 2015. A site visit was conducted on 16 June 2015, to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

## II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the community of Auburn and serves a population of approximately 13,800. The design daily average flow capacity of the Facility is 1.67 million gallons per day (MGD). Current flows through the Facility are approximately 1.0 MGD.

### A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system at the existing Facility consists of the following:

- Headworks with mechanical screening and grit removal
- One HDPE-lined aeration pond (Pond 1A)
- Four clay-lined flow equalization ponds (Ponds 1B, 2, 3, and 4)
- A lime feed system to adjust the water's alkalinity
- One oxidation ditch providing biological treatment capable of nitrification and partial denitrification
- Three circular secondary clarifiers
- Chemical feed facilities and a flocculation basin
- Seven deep-bed sand filters
- Two UV disinfection channels

Screenings from the mechanical screen at the plant headworks are washed and compacted before being sent to a landfill. The wastewater then enters a side flow weir structure where all flow in excess of a predetermined set point (currently around 1.3 mgd during the summer) is automatically diverted to the pond diversion box and then to Pond 1A.

The WWTP's pond system provides a combination of pre-aeration, flow equalization, and wet weather flow storage. Pond 1A, where flow is initially routed after the headworks, contains nine 7.5-horsepower aerators for odor control. The water level in Pond 1A is maintained at a constant level by a weir box. Excess flow in Pond 1A flows automatically by gravity to Pond 4. Pond 1A has an HPDE plastic liner system. When the flow to the secondary treatment facilities drops below the predetermined set point (i.e., 1.3 MGD), a motorized valve discharges flow from Pond 4 to make up the difference. Raw sewage flow from the City, plus makeup flow from Pond 4, maintains the flow into the secondary treatment facilities at the desired uniform rate.

During the winter when infiltration and inflow (I/I) produce high flows, flow equalization and storage volumes provided in Ponds 1A and 4 are not adequate. Additional storage capacity is achieved by allowing Pond 1A to overflow into Pond 1B, or by diverting excess flows directly from the pond diversion box to Ponds 2 and 3. Ponds 2 and 3 are then emptied as soon as possible by draining gravitationally into Pond 4. A total of about 24 million gallons (MG) of peak flow storage is provided.

By March 2011, the Discharger had installed a solar photo voltaic system within Pond 3, which provides a majority of the power needed to operate the Facility. Installation of the system does not alter the available capacity of Pond 3 for detention of wet weather flows or the pond's liner system.

The WWTP uses an oxidation ditch activated sludge process for secondary level treatment. The design capacity of the existing secondary treatment plant is 1.67 MGD. One oxidation ditch is equipped with two 50 horsepower (hp) brush aerators, one 20 hp, floating brush and one 30 hp floating brush aerator. The floating brushes serve as backup aerators to the 50 hp units. Two screw-type return sludge pumps are located on the east side of the ditch. The WWTP has three secondary clarifiers (two 64-foot diameter units and a 55-foot diameter unit) for settling of solids. The oxidation ditch is operated to nitrify and partially denitrify by sequencing its aerators on and off. Construction of a second oxidation ditch is scheduled to begin in 2016 and capacity will be increased to approximately 6 MGD.

Secondary effluent and treated pond effluent during extreme rain events are directed to a tertiary pump station which lift the water to a flocculation basin for chemical conditioning with polymer or coagulants. The water is then filtered in up to seven deep bed monomedia sand filters to remove turbidity. The filtered water is directed to two ultraviolet (UV) light disinfection channels for removal of bacteria and virus prior to discharge. Up to 6 MGD of secondary effluent can be directed through the filters and UV disinfection.

Waste sludge from the existing oxidation ditch and secondary clarifiers is sent to the return sludge pump station (RSPS). Sludge is either recycled within the system as return activated sludge (RAS) or wasted from the system as waste activated sludge (WAS). RAS is pumped from the RSPS back to the oxidation ditch. WAS is pumped to a belt filter press for dewatering. The dewatered sludge is disposed of at a landfill.

### B. Discharge Points and Receiving Waters

1. The Facility is located in Section 17, T12N, R8E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Auburn Ravine, a water of the United States and a tributary to East Side Canal, Natomas Cross Canal, and the Sacramento River at a point latitude 38° 53' 13" N and longitude 121° 06' 21" W.
3. The outfall is equipped with a 6-inch multi-port diffuser spanning the width of the creek.

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

Effluent limitations contained in Order R5-2010-0090-01 for discharges from **Discharge Point 001** (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2010-0090-01 are as follows:

**Table F-2. Historic Effluent Limitations and Monitoring Data**

| Parameter | Units | Effluent Limitation | | | Monitoring Data (Nov 2010 – Apr 2015) | | |
|---|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Highest Average Monthly Discharge | Highest Average Weekly Discharge | Highest Daily Discharge |
| Biochemical Oxygen Demand 5-day @ 20°C | mg/L | 10 | 15 | 20 | -- | -- | 5.8 |
| | lbs/day [1] | 140 | 210 | 280 | -- | -- | -- |
| Total Suspended Solids | mg/L | 10 | 15 | 20 | -- | -- | 6.2 |
| | lbs/day [1] | 140 | 210 | 280 | -- | -- | -- |
| Total Coliform Organisms | MPN/100 mL | 23 | 2.2 (7-day median) | 240 | -- | -- | 8 |
| Electrical Conductivity | µmhos/cm | 700 | -- | -- | -- | -- | 437 |
| Hardness (as $CaCO_3$) | mg/L | -- | -- | -- | -- | -- | 130 |
| beta-Endosulfan | µg/L | -- | -- | ND | -- | -- | ND |
| Chlorodibromomethane | µg/L | 0.41 | -- | 1.1 | -- | -- | 0.13 |
| Chloroform | µg/L | 1.1 | -- | -- | -- | -- | 0.81 |
| Dichlorobromomethane | µg/L | 0.56 | -- | 1.2 | -- | -- | 0.06 |
| Diazinon | mg/L | -- | 0.10 (4-day average) | 0.16 (1-hour average) | -- | -- | 0.21 |
| Endrin Aldehyde | µg/L | -- | -- | ND | -- | -- | ND |
| Heptachlor | µg/L | -- | -- | ND | -- | -- | ND |
| Aluminum, Total Recoverable | µg/L | 200 (annual average) | -- | -- | -- | -- | 270 |
| Lead, Total Recoverable | µg/L | 1.3 | -- | 2.2 | -- | -- | 1.4 |
| Manganese, Total Recoverable | µg/L | 50 | -- | -- | -- | -- | 61 |
| Mercury, Total Recoverable | µg/L | -- | -- | -- | -- | -- | 0.037 |
| Ammonia Nitrogen, Total (as N) | mg/L | 1.9 | -- | 5.8 | -- | -- | 5.6 |
| | lbs/day [1] | 26 | -- | 81 | -- | -- | -- |
| Nitrate Plus Nitrite (as N) | mg/L | 10 | -- | -- | -- | -- | 14 |
| Nitrite Nitrogen, Total (as N) | mg/L | 1.0 | -- | -- | -- | -- | 0.52 |

[1] Mass-based effluent limitations are based on a permitted average dry weather flow of 1.67 MGD.

## D. Compliance Summary

1. On 22 September 2010, the Central Valley Water Board adopted Cease and Desist Order (CDO) R5-2010-0091. The CDO required full compliance with the aluminum, chlorodibromomethane, chloroform, dichlorobromomethane, nitrate plus nitrite, and nitrite effluent limitations by 16 March 2011. The CDO required full compliance with the ammonia effluent limitations by 31 August 2014.

2. On 3 February 2011 the Central Valley Water Board adopted amended WDRs Order R5-2010-0090-01 and CDO R5-2010-0091-01. The amended WDRs Order modified the aluminum effluent limitations. Amended CDO R5-2010-0091-01 did not address the aluminum compliance issue and required full compliance with the chlorodibromomethane, chloroform, dichlorobromomethane, nitrate plus nitrite, and nitrite effluent limitations by 16 March 2011. The amended CDO provided interim effluent limitations for ammonia through 31 August 2014 "…or when the Discharger is able to come into compliance with the final effluent limitations, whichever is sooner."

3. As of 1 January 2011, the Discharger achieved compliance with the ammonia, chlorodibromomethane, chloroform, dichlorobromomethane, nitrate plus nitrite, and nitrite effluent limitations after constructing ultraviolet disinfection and nitrification-denitrification improvements to the treatment plant, as well as modifying treatment plant operations.

4. On 14 March 2011. Administrative Civil Liability Complaint R5-2011-0527 was issued to the Discharger for violations of the aluminum and chloroform effluent limitations in 2010. The ACLC was paid by the Discharger.

5. On 6 May 2011, Administrative Civil Liability Complaint R5-2011-0565 was issued to the Discharger for violations of the chloroform and aluminum effluent limitations in 2010 and early 2011. Thie ACLC was paid by the Discharger.

6. No other ACLCs have been issued. The Discharger has complied with the terms of the CDO because it constructed improvements, modified operations, and demonstrated full compliance with the ammonia, chlorodibromomethane, chloroform, dichlorobromomethane, nitrate plus nitrite, and nitrite effluent limitations. UV disinfection was installed and operating by 2012. The CDO was rescinded on 31 May 2013.

7. In a Notice of Violation (NOV) dated 6 November 2015, the Compliance and Enforcement Section of the Central Valley Water Board informed the City of Auburn (Discharger) that the discharge of waste from the Facility appears to have impacted groundwater with total coliform organisms, ammonia, total dissolved solids, and nitrate plus nitrite. The NOV required that the Discharger submit a technical report by 1 January 2016 that contains (a) a proposal to evaluate the extent of groundwater contamination for total coliform organisms, ammonia, total dissolved solids (TDS), and nitrogen using either temporary probes or permanent monitoring wells, and (b) an engineering feasibility study (EFS) evaluating the corrective actions which could be implemented to remediate and prevent any future contamination.

8. In a letter dated 4 April 2016, the Compliance and Enforcement Section of the Central Valley Water Board noted that the Discharger had submitted an 18 December 2015 *City of Auburn Technical Report, Wastewater Treatment Plant, Groundwater Issues/Engineering Feasibility Study*. The 4 April 2016 letter requires the Discharger to begin groundwater monitoring for ammonia, total dissolved solids, and nitrate plus nitrite on a quarterly basis and to submit the following:

   a. A Sampling and Analysis Plan by 1 May 2016;

   b. A proposal to evaluate the nature and extent of the groundwater limitation violations for ammonia, total dissolved solids, and nitrate plus nitrite by 1 June 2016; and

   c. A summary report regarding total coliform organisms by 1 February 2017.

### E. Planned Changes

The City of Auburn is proposing a number of secondary process upgrades to improve WWTP performance, add process redundancy, and comply with nutrient limitations. The project would construct a new oxidation ditch and associated facilities. The new oxidation ditch would be located within a portion of existing pond (Pond 4) south of and adjacent to the WWTP. The new oxidation ditch would include a separate anoxic zone for denitrification and aerated zone for full nitrification. The upgrades would also allow either the existing or new oxidation ditch to be removed from service for inspection and repairs. The remainder of Pond 4 will continue to be used as described above in Section II of this Fact Sheet.

Several other supporting facilities will be required as part of the upgrade, including, new mechanical fine screens, a liquid magnesium hydroxide system will replace the existing lime feed system for alkalinity control, and the existing return sludge pump will be replaced with a submersible pump station that would serve both the existing or new ditch. The project has an estimated construction time of two years and is planned to start in ~~early~~ August 2016.

## 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 the *Water Quality Control Plan, Fourth Edition (Revised ~~October~~ June 201~~4~~5), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

   The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table II-1, Section II, does not specifically identify beneficial uses for Auburn Ravine, but does identify present and potential uses for the Sacramento River from the from the Colusa Basin Drain to the "I" Street Bridge, to which Auburn Ravine, via East Side Canal and Natomas Cross Canal, 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 Auburn Ravine are as follows:

**Table F-3. Basin Plan Beneficial Uses**

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| 001 | Auburn Ravine | Existing:<br>Municipal and domestic supply (MUN);<br>Agricultural supply, including irrigation (AGR);<br>Water contact recreation, including canoeing and rafting (REC-1);<br>Non-contact water recreation (REC-2);<br>Warm freshwater habitat (WARM);<br>Cold freshwater habitat (COLD);<br>Migration of aquatic organisms, warm and cold (MIGR);<br>Spawning, reproduction, and/or early development, warm and cold (SPWN);<br>Wildlife habitat (WILD); and<br>Navigation (NAV). |
| -- | Groundwater | Municipal and domestic supply (MUN);<br>Agricultural supply (AGR);<br>Industrial service supply (IND); and<br>Industrial process water supply (PROC). |

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"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 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 State Water Board Resolution 68-16.

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, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

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

   The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis 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.** USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 C.F.R. parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Discharger has submitted a Notice of Intent (NOI) and been approved for coverage under the State Water Board's Industrial Storm water General Order. Therefore, this Order does not regulate storm water.

## 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 11 October 2011 USEPA gave final approval to California's 2008-2010 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*." Auburn Ravine is not listed on the 303(d) list of impaired water bodies. However, there is a proposed basin plan amendment which would apply the Water Quality Objective for diazinon to Auburn Ravine. Downstream water bodies listed on the 303(d) list of impaired water bodies include the Sacramento River from Knights Landing to the Delta (chlordane, DDT, dieldrin, mercury, PCBs, and unknown toxicity).
2. **Total Maximum Daily Loads (TMDL's).** There is currently a basin plan amendment that has been approved by our Board and the SWRCB but not OAL or USEPA; the basin plan amendment would apply the WQO for diazinon to Auburn Ravine. According to Basin Planning staff of the Central Valley Water Board, the TMDL for diazinon in Auburn Ravine is likely to be equivalent to the existing TMDL for diazinon in the Sacramento-San Joaquin Delta.
3. The 303(d) listings and TMDL's have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section IV.C.3 of this Fact Sheet.

## E. Other Plans, Polices and Regulations

1. **Title 27.** The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:
   a. The waste consists primarily of domestic sewage and treated effluent;
   b. The waste discharge requirements are consistent with water quality objectives; and
   c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
   d. The Facility contains one equalization pond which provides aeration (Pond 1A) and four equalization ponds (Ponds 1B, 2, 3, and 4) where a determination has been made by the Regional Water Board whether the facilities meet the exemptions from Title 27. The Regional Water Board's findings regarding Title 27 exemptions are as follows:
      i. **Pond 1A.** Pond 1A is exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a). Pond 1A is lined with plastic and provides pre-aeration of the wastewater before being directed to the secondary treatment

facilities, and therefore, is a necessary part of the Facility's wastewater treatment system.

ii. **Ponds 1B, 2, 3, and 4.** Ponds 1B, 2, 3, and 4 are exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a). During wet weather periods, the flow equalization and storage capacity of Pond 1A is inadequate, and Ponds 1B, 2, 3, and 4 provide additional storage, and therefore, are a necessary part of the Facility's wastewater treatment system. These ponds were constructed with 6-inch bentonite clay liners.

## IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include WQBEL's to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, "Policy for Application of Water Quality Objectives", 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) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. § 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin

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

### A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR section122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 C.F.R. section 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 C.F.R. section 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 C.F.R. section 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.
3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance
4. **Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on 40 C.F.R. section 122.41 et seq. that requires the proper design and operation of treatment facilities

### B. Technology-Based Effluent Limitations

1. **Scope and Authority**

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

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

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

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand ($BOD_5$), total suspended solids (TSS), and pH.

2. **Applicable Technology-Based Effluent Limitations**

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

   b. **Flow.** The Facility was designed to provide a tertiary level of treatment for up to a design flow of 1.67 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 1.67 MGD.

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

**Summary of Technology-based Effluent Limitations**
**Discharge Point 001**

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

| Parameter | Units | Effluent Limitations [3] | | | | |
|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Flow | MGD | -- | -- | 1.67 [1] | -- | -- |
| Biochemical Oxygen Demand (5-day @ 20° C) | mg/L | 30 | 45 | -- | -- | -- |
| | lbs/day [2] | 418 | 627 | -- | -- | |
| | % Removal | 85 | -- | -- | -- | -- |
| Total Suspended | mg/L | 30 | 45 | -- | -- | -- |

| Parameter | Units | Effluent Limitations [3] | | | | |
|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| Solids | lbs/day [2] | 418 | 627 | -- | -- | -- |
| | % Removal | 85 | -- | -- | -- | -- |
| pH | Standard Units | -- | -- | -- | 6.0 | 9.0 |

[1] The average dry weather discharge flow shall not exceed 1.67 MGD. The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined over three consecutive dry weather months (i.e., July, August, and September).

[2] Based on a design flow of 1.67 MGD.

[3] Note that more stringent WQBEL's for $BOD_5$, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.b of this Fact Sheet).

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

### 1. Scope and Authority

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

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

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

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

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution 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 II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

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

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

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from November 2010 through April 2015, which includes effluent and ambient background data submitted in SMRs and the Report of Waste Discharge (ROWD).

c. **Assimilative Capacity/Mixing Zone.** Based on the available information, the worst-case dilution for Auburn Ravine is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.

   Prior to 2005, the Discharger conducted a mixing zone study and submitted the results of a study of the variation of a conservative constituent (electrical conductivity) downstream of the point of discharge. However, the Discharger's study recommended that additional studies and modification of the diffuser would be necessary to determine how much assimilative capacity exists, if any, for any individual constituent. No further information/studies have been provided by the Discharger. Therefore, dilution and assimilative capacity within the receiving water were not considered in establishing effluent limitations in this Order. For pollutants that demonstrated reasonable potential, effluent limitations were applied at the point of discharge.

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. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. **Water Effect Ratio (WER) for Copper.** The Discharger submitted a *City of Auburn Copper Water-Effect Ratio* (ECO:LOGIC) dated 28 May 2010. The Discharger's study followed USEPA's *2001 Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA 822-R-01-005). Following the streamlined procedure, two separate sets of samples were evaluated on 9/10 November 2009 and 8/9 April 2010 to assess ambient conditions and to calculate a freshwater copper WER using the primary test species, *Ceriodaphnia dubia*. Consistent with the streamlined procedure, the Discharger used the geometric mean of the two sample WERs to calculate final site-specific WERs for dissolved copper. Based on the results of the study, the Discharger concluded that a dissolved WER for copper of 3.52, based on effluent data to represent low-flow, zero-dilution discharge conditions, is applicable to the discharge to Auburn Ravine.

Upon review of the Discharger's report, the Regional Water Board identified several deficiencies, including 1) the lack of sufficient information documenting the Facility's operating performance, 2) lack of information demonstrating that the plant performance requirements of the streamlined procedures were met, 3) concerns that proper sampling procedures were followed, and 4) lack of information regarding the last rainfall event before the first and second sampling events. The Regional Water Board issued their findings to the Discharger on 10 June 2010. The Discharger submitted a letter to the Regional Water Board on 21 June 2010, providing responses to each of the findings. The Discharger clarified that 1) effluent monitoring data for both sampling events was included in the May 2010 report, 2) that $BOD_5$ and TSS testing indicated that the Facility was operating in compliance with permit requirements at the time of sampling, 3) that copper samples were properly filtered in accordance with the streamlined procedure, and 4) that each sampling event was preceded by at least 3 days with no precipitation. Based on review of the Discharger's study and the responses provided, the Regional Water Board concluded that the Discharger's WER is applicable to the discharge to Auburn Ravine. Because only effluent data was used to calculate the WER, the WER does not apply to the upstream receiving water. See section IV.C.3.a.v of this Fact Sheet for a discussion of the RPA for copper.

f. **Water Effect Ratio (WER) for Aluminum.** The Discharger conducted studies to evaluate the toxicity of aluminum in Auburn Ravine. In June 2010, the Discharger began an Aluminum Water-Effect Ratio (WER) Study using USEPA's Interim Guidance on Determination and Use *of Water-Effect Ratios for Metals.* Toxicity tests were conducted using a range of dilutions from 100 percent effluent to 100 percent laboratory water. The test species was *Cerodaphnia dubia.* 100 percent survival was observed at every aluminum concentration up to 5,000 ug/L. In October 2010, the Discharger continued the Aluminum WER study using 100 percent Auburn Ravine water ranging to 100 percent lab water. The test species were *Cerodaphnia dubia* and Rainbow Trout*. Cerodaphnia dubia* was the more sensitive test species On 16 November 2010, the Discharger submitted a report titled "City of Auburn Aluminum Toxicity Study", that presented information that may be used to develop a sitespecific water-effect ratio (WER) for aluminum. A site-specific aluminum WER for Auburn Ravine was calculated to be >12.4. The study showed that aluminum concentrations in excess of 5,000 ug/L had no significant effects on the tested species1. Application of the site-specific aluminum WER results in a chronic aluminum water quality criterion of >1079 ug/L. The Aluminum Toxicity Study completed to date demonstrated that aluminum concentrations exceeding 5,000 ug/L had no significant effects on the tested species.

The City of Auburn Aluminum Toxicity Study followed USEPA's Interim Guidance on Determination and Use of Water-Effect Ratios for Metals, USEPA, February 1994. No significant effects were shown in samples containing extremely high aluminum concentrations, so only one testing event was conducted after consultation with Central Valley Water Board staff. This means that a complete WER study was not performed. However, the information provided in the City of Auburn Aluminum Toxicity Study is sufficient for use in interpreting the Basin Plan's narrative toxicity objective. The Aluminum Toxicity Study indicates that a WER of >12.4 applied to the NAWQC is protective of aquatic life in the Auburn Ravine. Implementing a WER of >12.4 to the 87 ug/L chronic criterion results in a chronic aquatic life criterion of >1078.8 ug/L. The Aluminum Toxicity Study did not evaluate the acute criterion, therefore, the appropriate criterion to implement the Basin Plan's narrative toxicity objective for the protection of the aquatic beneficial use is the acute criterion of 750 ug/L, as recommended by USEPA's NAWQC. In this instance, the most stringent water quality objective for aluminum is the Department of Public Health's Secondary Maximum Contaminant Level (MCL) of 200 ug/L. Based on the site-specific evaluation of the effluent data, implementation of the 200 ug/L MCL will be protective of aquatic life and human health beneficial uses.

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

This Order has established the criteria for hardness-dependent metals based on the hardness of the receiving water (actual ambient hardness) as required by the SIP[1] and the CTR[2]. The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. The CTR requires that the hardness values used shall be consistent with the design discharge conditions for design flows and mixing zones[3]. Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of once in ten years (7Q10). [4] This section of the CTR also indicates that the design conditions should be established such that the appropriate criteria are not exceeded more than once in a three year period on average.[5] The CTR requires that when mixing zones are allowed the CTR criteria apply at the edge of the mixing zone, otherwise the criteria apply throughout the water body including at the point of discharge. [6] The CTR does not define the term "ambient," as applied in the regulations. Therefore, the Central Valley Water Board has considerable discretion to consider upstream and downstream ambient conditions when establishing the appropriate water quality criteria that fully complies with the CTR and SIP.

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

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

[3] 40 C.F.R. §131.38(c)(4)(ii)

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

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

[6] 40 C.F.R. §131.38(c)(2)(i)

***Summary findings***

At design discharge conditions Auburn Ravine Creek is effluent dominated. Under these critical conditions (no upstream flow) the effluent is the receiving water that is used to define the ambient receiving water conditions to define the appropriate water quality criteria in accordance with the CTR and SIP. The ambient hardness for Auburn Ravine Creek is represented by the data in Figure F-3, below, which shows ambient hardness ranging from 13 mg/L to 130 mg/L based on all collected ambient data from October 2011 through April 2015. 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 13 mg/L (minimum) up to 130 mg/L (maximum). Staff recommends that the Board use the ambient hardness values shown in Table F-5 for the following reasons.

1. The ambient receiving water hardness values shown in Table F-5 are consistent with design discharge conditions and will result in criteria and effluent limitations that ensure protection of beneficial uses under all ambient receiving water conditions.
2. The Water Code mandates that the Central Valley Water Board establish permit terms that will ensure the reasonable protection of beneficial uses. In this case, using the lowest measured ambient hardness to calculate effluent limitations is not required to protect beneficial uses. Calculating effluent limitations based on the lowest measured ambient hardness is not required by the CTR or SIP, and is not reasonable as it would result in overly conservative limits that will impart substantial costs to the Discharger and ratepayers without providing any additional protection of beneficial uses. In compliance with applicable state and federal regulatory requirements, after considering the entire range of ambient hardness values, Board staff has used the ambient hardness values shown in Table F-5 to calculate the proposed effluent limitations for hardness-dependent metals. The proposed effluent limitations are protective of beneficial uses under all flow conditions.
3. Using an ambient hardness that is higher than the minimum observed ambient hardness will result in limits that may allow increased metals to be discharged to Auburn Ravine Creek, but such discharge is allowed under the antidegradation policy (State Water Board Resolution 68-16). The Central Valley Water Board finds that this degradation is consistent with the antidegradation policy (see antidegradation findings in Section IV.D.4 of the Fact Sheet). The Antidegradation policy requires the Discharger to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur, and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
4. Using the ambient hardness values shown in Table F-5 is consistent with the CTR and SIP's requirements for developing metals criteria.

**Table F-5. Summary of CTR Criteria for Hardness-dependent Metals**

| CTR Metals | Design Ambient Hardness (mg/L) [2] | Criteria (µg/L, total recoverable) [1] | |
|---|---|---|---|
| | | acute | chronic |
| Cadmium | 60 | 2.5 | 1.8 |
| Chromium III | 66 | 1200 | 150 |
| Copper | 66 | 9.5 (33) [3] | 6.5 (17) [3] |
| Lead | 54 | 37 | 1.5 |
| Nickel | 66 | 330 | 37 |
| Silver | 44 | 0.99 | -- |
| Zinc | 66 | 84 | 84 |

[1] Metal criteria rounded to two significant figures in accordance with the CTR.
[2] The ambient hardness values in this table represent actual observed receiving water hardness measurements from the dataset shown in Figure F-3.
[3] Site-specific Water Effects Ratio of 3.5 used to calculate CTR criteria for copper.

***Background***

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

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

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

Where:

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

WER = water-effect ratio

m, b = metal- and criterion-specific constants

The direction in the CTR regarding hardness selection is that it must be based on ambient hardness and consistent with design discharge conditions for design flows and mixing zones. Consistent with design discharge conditions and design flows means that the selected "design" hardness must result in effluent limitations under design discharge conditions that do not result in more than one exceedance of the applicable criteria in a three year period.[2] Where design flows for aquatic life criteria include the lowest one-day flow with an average reoccurrence frequency of once in ten years (1Q10) and the lowest average seven consecutive day flow with an average reoccurrence frequency of

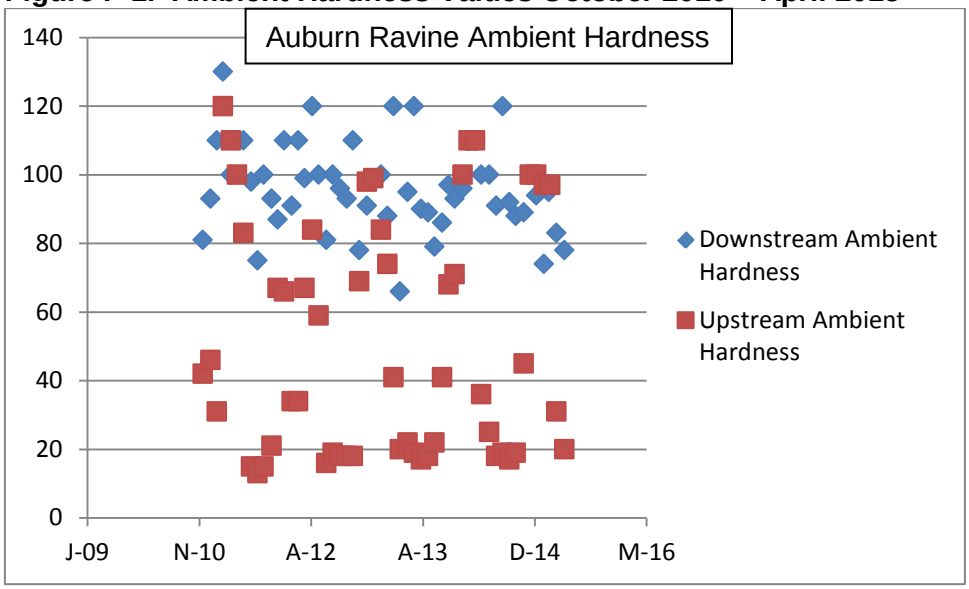
[1] For this discussion, all hardness values are expressed in mg/L as $CaCO_3$.
[2] 40 C.F.R. §131.38(c)(2)(iii) Table 4, notes 1 and 2

once in ten years (7Q10). Since Auburn Ravine Creek periodically contains no upstream flow, the critical design flow is zero.

***Ambient conditions***

The ambient receiving water hardness varied from 13 mg/L to 130 mg/L, based on 109 samples from October 2010 through April 2015 (see Figure F-1).

**Figure F-1. Ambient Hardness Values October 2010 – April 2015**




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

***Approach to derivation of criteria***

As shown above in Figure F-1, ambient hardness is variable. Because of the variation, there is no single hardness value that describes the ambient receiving water for all possible scenarios (e.g., minimum, maximum, mid-point). While the hardness selected must be the hardness of the ambient receiving water, selection of an ambient receiving water hardness that is too high would result in effluent limitations that do not protect beneficial uses. Also, the use of minimum ambient hardness would result in criteria that may not be representative considering the wide range of ambient conditions.

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

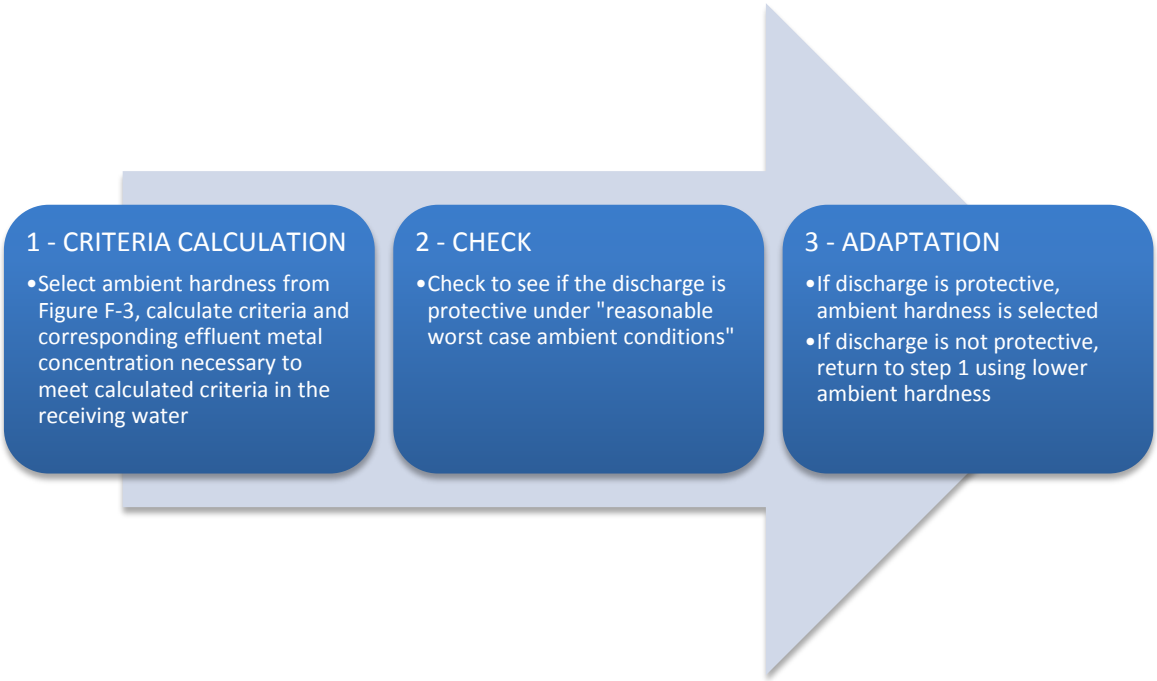
Reasonable worst-case ambient conditions:

- "Low receiving water flow." CTR design discharge conditions (1Q10 = 1.05 cfs) and 7Q10 = 1.50 cfs) have been selected to represent reasonable worst case receiving water flow conditions.

- "High receiving water flow (maximum receiving water flow)." This additional flow condition (338.4 cfs) has been selected consistent with the Davis Order, which required that the hardness selected be protective of water quality criteria under all flow conditions.
- "Low receiving water hardness." The minimum ambient receiving water hardness condition of 13 mg/L was selected to represent the reasonable worst case receiving water hardness.
- "Background ambient metal concentration at criteria." This condition assumes that the metal concentration in the background receiving water is equal to CTR criteria (upstream of the facility's discharge). Based on data in the record, this is a design condition that does not regularly occur in the receiving water and is used in this analysis to ensure that limits are protective of beneficial uses even in the situation where there is no assimilative capacity.

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

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




1. CRITERIA CALCULATION. CTR criteria are calculated based on actual measured ambient hardness sample results, starting with the maximum observed ambient hardness of 130 mg/L. Effluent metal concentrations necessary to meet the above calculated CTR criteria in the receiving water are calculated in accordance with the SIP.[1] This should not be confused with an effluent limit. Rather, it is the Effluent Concentration Allowance (ECA), which is "a definition of effluent water quality that is necessary to meet the water quality standards in the receiving water."[2] If effluent

[1] SIP Section 1.4.B, Step 2, provides direction for calculating the Effluent Concentration Allowance.
[2] U.S. EPA Technical Support Document for Water Quality-based Toxics Control (TSD), pg. 96.

limits are found to be needed, the limits are calculated to enforce the ECA considering effluent variability and the probability basis of the limit.

2. CHECK. USEPA's simple mass balance equation[1] is used to evaluate if discharge at the computed ECA is protective. Resultant downstream metal concentrations are compared with downstream calculated CTR criteria under reasonable worst-case ambient conditions.
3. ADAPT. If step 2 results in:
   a. receiving water metal concentration that complies with CTR criteria under reasonable worst-case ambient conditions, then the hardness value is selected.
   b. receiving water metal concentration greater than CTR criteria, then return to bullet 1, selecting a lower ambient hardness value.

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

***Results of iterative analysis***

The above iterative analysis for each CTR hardness-dependent metal results in the selected ambient hardness values shown in Table F-5, above. Using these hardness values to calculate criteria, which are actual ambient sample results, will result in effluent limitations that are protective under all ambient flow conditions. Zinc and silver are used as examples below to illustrate the results of the analysis. Tables F-6 and F-7 below summarize the numeric results of the three step iterative approach for zinc and silver. As shown in the example tables, ambient hardness values of 66 mg/L (zinc) and 44 mg/L (silver) are used to derive criteria and effluent limitations. Then under the "check" step, worst-case ambient receiving water conditions are used to test whether the discharge results in compliance with CTR criteria and protection of beneficial uses.

The results of the above analysis, summarized in the tables below, show that the ambient hardness values selected using the three-step iterative process results in protective effluent limitations that achieve CTR criteria under all flow conditions. Tables F-6 and F-7 summarize the critical flow conditions. However, the analysis evaluated all flow conditions to ensure compliance with the CTR criteria at all times.

**Table F-6. Verification of CTR Compliance for Zinc**

| **Receiving water hardness used to compute effluent limitations** | | | | **66 mg/L** |
|---|---|---|---|---|
| **Effluent Concentration Allowance (ECA) for Zinc [2]** | | | | **84 µg/L** |
| | **Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions** | | | **Complies with CTR Criteria?** |
| | **Hardness** | **CTR Criteria (µg/L)** | **Ambient Zinc Concentration [1] (µg/L)** | |
| 1Q10 | 66 | 84 | 84 | **Yes** |
| 7Q10 | 66 | 84 | 84 | **Yes** |
| Max receiving water flow | 13 | 21 | 21 | **Yes** |

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

[1] U.S. EPA NPDES Permit Writers' Handbook (EPA 833-K-10-001 September 2010, pg. 6-24)

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

**Table F-7. Verification of CTR Compliance for Silver**

| Receiving water hardness used to compute effluent limitations | | | | 44 mg/L |
|---|---|---|---|---|
| Effluent Concentration Allowance (ECA) for Silver [2] | | | | 0.99 µg/L |
| | Downstream Ambient Concentrations Under Worst-Case Ambient Receiving Water Conditions | | | Complies with CTR Criteria? |
| | Hardness | CTR Criteria (µg/L) | Ambient Silver Concentration [1] (µg/L) | |
| 1Q10 | 44 | 0.99 | 0.99 | **Yes** |
| 7Q10 | 44 | 0.99 | 0.99 | **Yes** |
| Max receiving water flow | 13 | 0.12 | 0.12 | **Yes** |

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

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

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

a. **Constituents with No Reasonable Potential.** WQBEL's are not included in this Order for constituents that do not demonstrate reasonable potential (i.e. constituents were not detected in the effluent or receiving water); 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. However, the following constituents were found to have no reasonable potential after assessment of the data:

i. **Aluminum**

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and total organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al3+) binding to negatively charged fish gills.

(a) **WQO.** State of California Department of Public Health (DPH) has established Secondary Maximum Contaminant Levels (MCLs) to assist public drinking water systems in managing their drinking water for aesthetic conditions such as taste, color, and odor. The Secondary MCL for aluminum is 200 µg/L for protection of the MUN beneficial use. Title 22 requires compliance with Secondary MCLs on an annual average basis.

The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. The Basin Plans' *Policy for Application of Water Quality Objectives* requires the Central Valley Water Board to consider, "*on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective*." Relevant information includes, but is not limited to (1) USEPA Ambient Water Quality Criteria (NAWQC) and subsequent Correction, (2) site-specific conditions of Auburn Ravine, the receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region, which includes the City of Auburn WWTP and Auburn Ravine. (Basin Plan, p. IV.-17.00; see also, 40 CFR 122.44(d)(vi).)

**USEPA NAWQC**. USEPA recommended the NAWQC aluminum acute criterion at 750 µg/L based on test waters with a pH of 6.5 to 9.0. USEPA also recommended the NAWQC aluminum chronic criterion at 87 µg/L based upon the following two toxicity tests. All test waters contained hardness at 12 mg/L as $CaCO_3$.

(1) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 6.5) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390 µg/L, and the 160-day old striped bass showed 58% mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98% mortality at aluminum dose of 87.2 µg/L in waters with pH at 6.0, which is USEPA's basis for the 87 µg/L chronic criterion. The varied results draw into question this study and the applicability of the NAWQC chronic criterion of 87 µg/L.

(2) Chronic toxicity effects on 60-day old brook trout were evaluated in circumneutral pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation started upon hatching of eyed eggs of brook trout, and their weight and length were measure after 45 days and 60 days. The 60-day old brook trout showed 24% weight loss at 169 µg/L of aluminum and 4% weight loss at 88 µg/L of aluminum, which is the basis for USEPA's chronic criteria. Though this test study shows chronic toxic effects of 4% reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

**Site-specific Conditions.** USEPA advises that a water effects ratio may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms when the pH and hardness conditions of the receiving water are not similar to that of the test conditions.[1] Auburn Ravine monitoring data indicate that the pH and hardness values are similar at times to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below. The pH of Auburn Ravine, the receiving water, ranged from 5.7 to 8.3 with a median of 6.6 based on 475 monitoring results obtained between October 2010 and April 2015. The hardness of Auburn Ravine ranged from 13 mg/L to 120 mg/L, based on 54 samples from the same period.

The pH of the effluent, ranged from 6.8 to 7.7 with a median of 7.1 based on 1122 monitoring results obtained during the same period. These water conditions typically are circumneutral pH where aluminum is predominately in the form of $Al(OH)_3$ and non-toxic to aquatic life. The hardness of the effluent ranged from 66 mg/L to 130 mg/L, which is above the test conditions, and thus less toxic, than the tests used to develop the chronic criterion.

**Table F-8. Hardness, pH, and Aluminum Parameters**

| Parameter | Units | Test Conditions for Applicability of Chronic Criterion | Effluent | Receiving Water |
|---|---|---|---|---|
| pH | standard units | 6.0 – 6.5 | 6.8 - 7.7 | 5.7 - 8.3 |
| Hardness, Total (as $CaCO_3$) | mg/L | 12 | 66 - 130 | 13-120 |
| Aluminum, Total Recoverable | µg/L | 87.2 - 390 | 50 - 270 | 0 - 200 |

**Local Environmental Conditions and Studies.** Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of Auburn Ravine are included in the table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate. As shown in the following table, all $EC_{50}$[2] toxicity study result values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in these surface waters and in Auburn Ravine, is less toxic (or less reactive) to aquatic species then demonstrated in the toxicity tests that USEPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests USEPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to Auburn Ravine. The portions of the table below that are applicable to Auburn Ravine are highlighted.

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

[2] The effect concentration is a point estimate of the toxicant concentration that would cause an observable adverse effect (e.g. death, immobilization, or serious incapitation) in a given percent of the test organisms, calculated from a continuous model (e.g. Probit Model). $EC_{50}$ is a point estimate of the toxicant concentration that would cause an observable adverse effect in 50 percent of the test organisms. The $EC_{50}$ is used in toxicity testing to determine the appropriate chronic criterion.

**Table F-9. Central Valley Region Site-Specific Aluminum Toxicity Data**

| Discharger | Test Waters | Hardness Value | Total Aluminum $EC_{50}$ Value | pH | WER |
|---|---|---|---|---|---|
| ***Oncorhynchus mykiss* (rainbow trout)** | | | | | |
| Manteca | Surface Water/Effluent | 124 | >8600 | 9.14 | N/C |
| Auburn | Surface Water | 16 | >16500 | 7.44 | N/C |
| Modesto | Surface Water/Effluent | 120/156 | >34250 | 8.96 | >229 |
| Yuba City | Surface Water/Effluent | 114/164[1] | >8000 | 7.60/7.46 | >53.5 |
| ***Ceriodaphnia dubia* (water flea)** | | | | | |
| Auburn | Effluent | 99 | >5270 | 7.44 | >19.3 |
| | Surface Water | 16 | >5160 | 7.44 | >12.4 |
| Manteca | Surface Water/Effluent | 124 | >8800 | 9.14 | N/C |
| | Effluent | 117 | >8700 | 7.21 | >27.8 |
| | Surface Water | 57 | 7823 | 7.58 | 25.0 |
| | Effluent | 139 | >9500 | 7.97 | >21.2 |
| | Surface Water | 104 | >11000 | 8.28 | >24.5 |
| | Effluent | 128 | >9700 | 7.78 | >25.0 |
| | Surface Water | 85 | >9450 | 7.85 | >25.7 |
| | Effluent | 106 | >11900 | 7.66 | >15.3 |
| | Surface Water | 146 | >10650 | 7.81 | >13.7 |
| Modesto | Surface Water/Effluent | 120/156 | 31604 | 8.96 | 211 |
| Yuba City | Surface Water/Effluent | 114/164[1] | >8000 | 7.60/7.46 | >53.5 |
| Placer County (SMD 1) | Effluent | 150 | >5000 | 7.4 – 8.7 | >13.7 |
| ***Daphnia magna* (water flea)** | | | | | |
| Manteca | Surface Water/Effluent | 124 | >8350 | 9.14 | N/C |
| Modesto | Surface Water/Effluent | 120/156 | >11900 | 8.96 | >79.6 |
| Yuba City | Surface Water/Effluent | 114/164[1] | >8000 | 7.60/7.46 | >53.5 |

The Discharger conducted studies to evaluate the toxicity of aluminum in Auburn Ravine. In June 2010, the Discharger began an Aluminum Water-Effect Ratio (WER) Study using USEPA's *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals.* Toxicity tests were conducted using a range of dilutions from 100 percent effluent to 100 percent laboratory water. The test species was *Cerodaphnia dubia.* 100 percent survival was observed at every aluminum concentration up to 5,000 ug/L. In October 2010, the Discharger continued the Aluminum WER study using 100 percent Auburn Ravine water ranging to 100 percent lab water. The test species were *Cerodaphnia dubia* and Rainbow Trout*. Cerodaphnia dubia* was the more sensitive test species On 16 November 2010, the Discharger submitted a report titled "City of Auburn Aluminum Toxicity Study", that presented information that may be used to develop a sitespecific (WER) for aluminum. A site-specific aluminum WER for Auburn Ravine was calculated to be >12.4. The study showed that aluminum concentrations in excess of 5,000 ug/L had no significant effects on the tested species. Application of the site-specific aluminum WER results in a chronic aluminum water quality criterion of >1079 ug/L. The Aluminum Toxicity Study completed to date demonstrated that aluminum concentrations exceeding 5,000 ug/L had no significant effects on the tested species.

The City of Auburn Aluminum Toxicity Study followed USEPA's Interim Guidance on Determination and Use of Water-Effect Ratios for Metals, USEPA, February 1994. No significant effects were shown in samples containing extremely high aluminum concentrations, so only one testing event was conducted after consultation with Central Valley Water Board staff. This means that a complete WER study was not performed. However, the information provided in the City of Auburn Aluminum Toxicity Study is sufficient for use in interpreting the Basin Plan's narrative toxicity objective. The Aluminum Toxicity Study indicates that a WER of >12.4 applied to the NAWQC is protective of aquatic life in the Auburn Ravine. Implementing a WER of >12.4 to the 87 ug/L chronic criterion results in a chronic aquatic life criterion of >1078.8 ug/L. The Aluminum Toxicity Study did not evaluate the acute criterion, therefore, the appropriate criterion to implement the Basin Plan's narrative toxicity objective for the protection of the aquatic beneficial use is the acute criterion of 750 ug/L, as recommended by USEPA's NAWQC. In this instance, the most stringent water quality objective for aluminum is the Department of Public Health's Secondary Maximum Contaminant Level (MCL) of 200 ug/L. Based on the site-specific evaluation of the effluent data, implementation of the 200 ug/L MCL would be protective of aquatic life and human health beneficial uses.

(b) **RPA Results.** Previous Order R5-2010-0090-01 contained effluent limitations for aluminum based on the 200 ug/L MCL. Between 2012 and 2015, the maximum receiving water concentration of aluminum was 47 µg/L and the MEC was 270 µg/L. The highest annual average effluent concentration was 71 µg/L, which does not exceed the MCL. Therefore, reasonable potential does not exist for aluminum to exceed the criterion and this Order does not contain effluent limitations for aluminum. Based on new information in the monitoring data, removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ii. **Cadmium**

(a) **WQO.** The California Toxics Rule (CTR) includes hardness-dependent criteria for the protection of freshwater aquatic life for cadmium. These criteria for cadmium are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent. The acute and chronic cadmium criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.f of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as cadmium. The CTR includes hardness-dependent criteria for cadmium for the receiving water. Based on four samples collected between between May 2012 and April 2015, cadmium was not detected in the upstream receiving water. The laboratory Reporting Level was 0.25 µg/L and the Method Detection Limit was 0.17 µg/L. The RPA was conducted using the upstream receiving water hardness of 13 mg/L to calculate the criteria for comparison to the maximum ambient background concentration.

The observed maximum effluent concentration (MEC) was ND based on four samples collected between between May 2012 and April 2015. The RPA was conducted using the receiving water hardness (under critical flow conditions) of 60 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

The table below shows the specific criteria calculated for the RPA. There was no reasonable potential for cadmium in the receiving water or the effluent to exceed water quality criteria. Therefore, this Order does not contain effluent limitations for cadmium.

**Table F-10. Cadmium CTR Criteria Comparison**

| | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|
| Receiving Water | 0.45 µg/L [1] | 0.50 µg/L [1] | ND at 0.17 µg/L | No [3] |
| Effluent | 2.5 µg/L [2] | 1.8 µg/L [2] | ND at 0.17 µg/L | No [4] |

[1] Based on lowest observed upstream hardness of 13 mg/L (as $CaCO_3$)
[2] Based on the receiving water hardness of 60 mg/L.
[3] Per Section 1.3, step 4 of the SIP.
[4] Per Section 1.3, step 6 of the SIP.

iii. **Chlorine Residual**

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

(b) **RPA Results.** Previous Order R5-2010-0090-01 contained effluent limitations for Chlorine Residual. However, the Discharger installed a new UV disinfection system in 2012 and discontinued use of the chlorine disinfection system. Chlorine is not longer used at the Facility for wastewater disinfection or for maintenance and cleaning. Therefore, there is no longer reasonable potential for chlorine residual and the effluent limitations have been removed from this Order. Based on new information in the monitoring data, removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Chloroform, Dibromochloromethane, and Dichlorobromomethane**

(a) **WQO.** There are no applicable CTR criteria or MCLs for chloroform. However, CalEPA has developed a Cancer Potency Factor as a Drinking Water Level of 1.1 µg/L and the California Office of Environmental Health Hazard Assessment (OEHHA) has developed a Public Health Goal (PHG) of 1.1 µg/L (tentatively 1 µg/L) for chloroform, which can be used to interpret the narrative toxicity and chemical constituents objective in the Basin Plan for the protection of the MUN beneficial use. The maximum effluent concentrations were used to evaluate reasonable potential to exceed the standard for chloroform of 1.1 µg/L.

The CTR includes a criterion of 0.41 µg/L for dibromochloromethane for the protection of human health for waters from which both water and organisms are consumed.

The CTR includes a criterion of 0.56 µg/L for dichlorobromomethane for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** Previous Order R5-2010-0090-01 contained effluent limitations for chloroform, dibromochloromethane, and dichlorobromomethane, which may be byproducts of the chlorine disinfection system. The Discharger replaced the chlorine disinfection system with a UV disinfection system in 2012. Therefore, there is no longer reasonable potential for chloroform, dibromochloromethane, and dichlorobromomethane, they were not detected in the effluent between 2012 and 2015, and effluent limitations are not needed for them. Based on new information in the monitoring data, removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

v. **Chromium III**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for chromium III. These criteria for chromium III are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent. The acute and chronic chromium III criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.f of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as chromium III. The CTR includes hardness-dependent criteria for chromium III for the receiving water. Based on four samples collected between May 2012 and April 2015, chromium III was detected but not quantified in the upstream receiving water at a concentration of 0.47 µg/L. The laboratory Reporting Level was 2 µg/L and the Method Detection Limit was 0.13 µg/L. The RPA was conducted using the upstream receiving water hardness of 13 mg/L to calculate the criteria for comparison to the maximum ambient background concentration.

Chromium III was detected but not quantified in the effluent, based on four samples collected between May 2012 and April 2015, at a concentration of 0.35 µg/L, which is lower than the criteria. The RPA was conducted using the receiving water hardness of 66 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

The table below shows the specific criteria calculated for the RPA. There was no reasonable potential for chromium III in the receiving water or the effluent to exceed water quality criteria. Therefore, this Order does not contain effluent limitations for choromium III.

**Table F-11. Chromium CTR Criteria Comparison**

| | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|
| Receiving Water | 330 µg/L [1] | 39 µg/L [1] | DNQ at 0.47 µg/L | No[3] |
| Effluent | 1300 µg/L [2] | 150 µg/L [2] | DNQ at 0.35 µg/L | No[4] |

[1] Based on lowest upstream ambient hardness of 13 mg/L (as $CaCO_3$)
[2] Based on receiving water hardness of 66 mg/L (as $CaCO_3$)
[3] Per Section 1.3, step 4 of the SIP.
[4] Per Section 1.3, step 6 of the SIP.

vi. **Diazinon**

(a) **WQO.** Diazinon has been banned for residential use since 2004; however, it is still detected in surface waters. Diazinon has a half-life of 70 hours to 12 weeks in surface waters and does not bioaccumulate in aquatic organisms.[1] The Regional Water Board adopted a TMDL for diazinon in the Sacramento and Feather Rivers and amended the Basin Plan to include diazinon wasteload allocations and water quality objectives on 16 October 2003, which applied to the Sacramento River from the Shasta Dam to the I Street Bridge. On 3 May 2007, the Regional Water Board adopted Resolution No. R5-2007-0034, revising the water quality objectives and control program for diazinon originally adopted in 2003, based on new information that called into question the scientific basis for the 2003 water quality objectives. Resolution No. R5-2007-0034 revised the 1-hour average objective from 0.080 µg/L to 0.16 µg/L and the 4-day average objective from 0.050 µg/L to 0.10 µg/L for the Sacramento River from Shasta Dam to Colusa Basin Drain and from the Colusa Basin to I Street Bridge. In the 2010 303(d) list update, USEPA removed diazinon from the list of pollutants exceeding water quality standards in the Sacramento River from Shasta Dam to the I Street Bridge since recent concentration data showed diazinon concentrations in this segment are below water quality objectives.

The Facility's discharge point is approximately 35 miles upstream from the confluence of Auburn Ravine and the Sacramento River. Auburn Ravine is an ephemeral stream that is supplemented with water discharged from PG&E's Wise Powerhouse approximately 1,000 feet upstream of the Facility's discharge point. Wise Powerhouse is typically operated from April through October. PG&E generally performs scheduled maintenance between October 15 and November 30, and during this time the Powerhouse does not discharge to Auburn Ravine. Historically, days of zero flow occur between October and February, occurring more frequently during dry years.

Currently, there is no water quality objective in the Basin Plan for diazinon in Auburn Ravine. To address this lack of a water quality objective for Auburn Ravine and other upstream tributaries to the Sacramento River, the Central Valley Water Board and SWRCB approved a proposed Basin Plan amendment which would apply a new water quality objective for

[1] Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention, ToxGuide™ for Diazinon, September 2011.

diazinon to Auburn Ravine. The proposed Basin Plan amendment is awaiting submittal to the Office of Administrative Law, followed by USEPA. Should the water quality objective for diazinon in Auburn Ravine be approved this Order will be reopened to include the appropriate effluent limitations for the Facility discharge.

(b) **RPA Results.** Previous Order R5-2010-0090-01 contained effluent limitations for diazinon from the diazinon TMDL for the Sacramento River. Order R5-2010-0090 inappropriately determined that there was reasonable potential and established diazinon effluent limitations. The MEC for diazinon between May 2012 and April 2015 was 0.21 µg/L; however, as stated above the water quality objective for Auburn Ravine has not been finalized, so the objective cannot be used to establish the water quality criteria for comparison against effluent discharge concentrations for determination of reasonable potential. Therefore, reasonable potential does not currently exist for diazinon. Removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

This Order contains a reopener provision should the proposed Basin Plan amendment be approved. This Order also contains quarterly effluent monitoring and reporting requirements in an effort to monitor for the presence of diazinon in the effluent discharged to Auburn Ravine and for use in future reasonable potential analysis. If the effluent discharge indicates an upward trend in diazinon concentrations, then the Board may require the Discharger to submit a diazinon study.

vii. **Lead**

(a) **WQO.** The California Toxics Rule (CTR) includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. These criteria for lead are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent. The acute and chronic lead criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.f of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as lead. The CTR includes hardness-dependent criteria for lead for the receiving water. Previous Order R5-2010-0090-01 contained effluent limitations for lead (AMEL = 1.3 µg/L and MDEL = 2.2 µg/L). Based on 31 effluent samples, lead was detected in the effluent above the chronic criterion with an MEC of 1.6 µg/L. No receiving water data was collected.

Table F-16 below shows the specific criteria calculated for the RPA. Based on four samples collected between May 2012 and April 2015, lead was detected but not quantified at 0.46 µg/L in one upstream receiving water sample (RL = 0.5 µg/L and MDL = 0.23 µg/L). The other three receiving water samples were ND with an MDL of 0.23 µg/L. Therefore, the reasonable potential analysis for the receiving water is inconclusive because the one detected value is an estimated value.

The observed maximum effluent concentration (MEC) was 1.2 µg/L based on 36 effluent samples collected between May 2012 and April 2015. The RPA was conducted using the receiving water hardness of 54 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

There was no reasonable potential for the effluent to exceed water quality criteria with an MEC of 1.2 µg/L. Therefore, this Order does not contain effluent limitations for lead.

**Table F-12. Lead CTR Criteria Comparison**

| | Hardness | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|---|
| Receiving Water | 13 | 6.1 µg/L | 0.24 µg/L | DNQ at 0.46 µg/L | Inconclusive [1] |
| Effluent | 54 | 37 µg/L | 1.5 µg/L | 1.2 µg/L | No [2] |

[1] Per Section 1.3, step 4 of the SIP.
[2] Per Section 1.3, step 6 of the SIP.

viii. **Manganese**

(a) **WQO.** The Secondary MCL – Consumer Acceptance Limit for manganese is 50 µg/L, which is used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

(b) **RPA Results.** Previous Order R5-2010-0090-01 contained effluent limitations for manganese (50 µg/L as a monthly average). Under current methodology, the effluent limit would be an annual average rather than a monthly average. The annual average concentration of 14 µg/L manganese, does not exceed the criterion. Therefore, reasonable potential does not exist for manganese and this Order does not contain effluent limitations for manganese. Based on new information in the monitoring data, removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet)

ix. **Nickel**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for nickel. These criteria for nickel are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA translators were used for the receiving water and effluent. The acute and chronic nickel criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.f of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as nickel. The CTR includes hardness-dependent criteria for nickel for the receiving water. Based on four samples collected between May 2012 and April 2015, nickel was detected but not quantified in the upstream receiving water at a concentration of 1.7 µg/L, which is lower than the criteria. The laboratory Reporting Level

was 5 µg/L and the Method Detection Limit was 0.22 µg/L. The RPA was conducted using the upstream receiving water hardness of 13 mg/L to calculate the criteria for comparison to the maximum ambient background concentration.

The observed maximum effluent concentration (MEC) was 3.8 based on four samples collected between May 2012 and April 2015. The RPA was conducted using the receiving water hardness of 66 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

The table below shows the specific criteria calculated for the RPA. There was no reasonable potential for nickel in the receiving water or the effluent to exceed water quality criteria. Therefore, this Order does not contain effluent limitations for nickel.

**Table F-13. Nickel CTR Criteria Comparison**

| | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|
| Receiving Water | 80 µg/L [1] | 9.3 µg/L [1] | DNQ at 1.7 µg/L | No[3] |
| Effluent | 330 µg/L [2] | 37 µg/L [2] | 3.8 µg/L | No[4] |

[1] Based on the lowest upstream observed hardness of 13 mg/L (as $CaCO_3$)
[2] Based on receiving water hardness of 66 mg/L (as $CaCO_3$)
[3] Per Section 1.3, step 4 of the SIP.
[4] Per Section 1.3, step 6 of the SIP.

x. **Persistent Chlorinated Hydrocarbon Pesticides**

(a) **WQO.** The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include aldrin; alpha-BHC; beta-BHC; gamma-BHC; delta-BHC; chlordane; 4,4-DDT; 4,4-DDE; 4,4-DDD; dieldrin; alpha-endosulfan; beta-endosulfan; endosulfan sulfate; endrin; endrin aldehyde; heptachlor; heptachlor epoxide; and toxaphene.

(b) **RPA Results.** Previous Order R5-2010-0090-01 contained effluent limitations for beta-endosulfan, endrin aldehyde, and heptachlor. During the previous permit term, the three pesticides were sampled and analyzed monthly but no detections were reported in the monitoring reports. Therefore, there is no reasonable potential for the three pesticides and this Order does not contain effluent limitations for them. Based on new information in the monitoring data, removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

xi. **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 USEPA Ambient Water Quality Criteria for Chloride recommends acute

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

**Table F-14. Salinity Water Quality Criteria/Objectives**

| Parameter | Agricultural WQ Objective[1] | Secondary MCL[2,3] | USEPA NAWQC | Effluent | |
|---|---|---|---|---|---|
| | | | | Average[4] | Maximum |
| EC (µmhos/cm) | Varies[2] | 900, 1600, 2200 | N/A | **321** | **437** |
| TDS (mg/L) | Varies | 500, 1000, 1500 | N/A | **193** | **280** |
| Sulfate (mg/L) | Varies | 250, 500, 600 | N/A | **--** | **--** |
| Chloride (mg/L) | Varies | 250, 500, 600 | 860 1-hr<br>230 4-day | **--** | **--** |

1 Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan., However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

2 The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

3 The secondary MCLs objectives are specified TDS or EC in addition to sulfate and chloride per the Basin Plan.

4 Maximum calendar annual average.

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

(2) **Electrical Conductivity.** 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. The agricultural water quality goal, that is used as a screening level, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a

restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

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

(4) **Total Dissolved Solids.** The Secondary MCL for 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.

(b) **RPA Results.**

(1) **Chloride.** Effluent chloride concentrations were not analyzed during the term of previous Order R5-2010-0090-01.

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports for 2012 to 2015, shows an average effluent EC of 321 µmhos/cm, with a range from 48 µmhos/cm to 437 µmhos/cm. These levels do not exceed the Secondary MCL. The background receiving water EC averaged 80.6 µmhos/cm.

(3) **Sulfate.** Effluent sulfate concentrations were not analyzed during the term of previous Order R5-2010-0090-01.

(4) **Total Dissolved Solids.** The average TDS effluent concentration was 193 mg/L with concentrations ranging from 22 mg/L to 280 mg/L. These levels do not exceed the Secondary MCL. The background receiving water TDS was not analyzed.

Previous Order R5-2010-0090-01 contained a performance-based effluent limitation for EC as follows:

*For a calendar year, the annual average effluent electrical conductivity shall not exceed the municipal water supply electrical conductivity plus an increment of 500 µmhos/cm, or 700 µmhos/cm, whichever is less.*

Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity and this Order does not contain effluent limitations for salinity. Based on new information in the monitoring data, removal of the effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

However, since the Discharger discharges to Auburn Ravine, a tributary of of the Sacramento River and eventually the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley.

Therefore, this Order contains a provision that the salinity evaluation and minimization plan shall be reviewed and updated if the effluent annual

average calendar year electrical conductivity concentration is greater than 700 µmhos/cm. If the plan is updated, it shall be submitted within 60 days of exceeding an effluent electrical conductivity annual average of 700 µmhos/cm.

In addition, water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

xii. **Silver**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for silver. These criteria for silver are presented in dissolved concentrations, as instantaneous maxima. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent. The silver criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.f of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as silver. Based on four samples collected between October 2010 and April 2015, silver was not detected in the upstream receiving water with a laboratory method detection limit of 1 µg/L and a reporting level of 0.15 µg/L, which is higher than the criterion. However, there is no reasonable potential for silver in the upstream receiving water because it was not detected. The RPA was conducted using the upstream receiving water hardness of 13 mg/L to calculate the criteria for comparison to the maximum ambient background concentration.

Silver was not detected in the effluent, based on four samples collected between October 2010 and April 2015. The laboratory reporting level was 0.15 µg/L, which is lower than the criterion. There is no reasonable potential for silver in the effluent. The RPA was conducted using the receiving water hardness (under critical flow conditions) of 44 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

The table below shows the specific criteria calculated for the RPA. There was no reasonable potential for silver in the receiving water or the effluent to exceed water quality criteria. Therefore, this Order does not contain effluent limitations for silver.

**Table F-15. Silver CTR Criteria Comparison**

| | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|
| Receiving Water | 0.12 µg/L[1] | -- | ND at 0.15 µg/L | No[3] |
| Effluent | 0.99 µg/L[2] | -- | ND at 0.15 µg/L | No[4] |

[1] Based on lowest upstream ambient hardness of 13 mg/L (as $CaCO_3$)
[2] Based on receiving water hardness of 44 mg/L (as $CaCO_3$)
[3] Per Section 1.3, step 4 of the SIP.
[4] Per Section 1.3, step 6 of the SIP.

xiii. **Zinc**

(a) **WQO.** The California Toxics Rule (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 the receiving water and effluent. The acute and chronic cadmium criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.f of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as zinc. The CTR includes hardness-dependent criteria for zinc for the receiving water. Based on four samples collected between October 2010 and April 2015, zinc was detected but not quantified at 2.9 µg/L in the upstream receiving water. The laboratory Reporting Level was 10 µg/L and the Method Detection Limit was 1.3 µg/L. The RPA was conducted using the upstream receiving water hardness of 13 mg/L to calculate the criteria for comparison to the maximum ambient background concentration.

The MEC was 26 µg/L based on four samples collected between October 2010 and April 2015. The RPA was conducted using the receiving water hardness of 66 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

The table below shows the specific criteria calculated for the RPA. There was no reasonable potential for zinc in the receiving water or the effluent to exceed water quality criteria. Therefore, this Order does not contain effluent limitations for zinc.

**Table F-16. Zinc CTR Criteria Comparison**

| | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|
| Receiving Water | 21 µg/L [1] | 21 µg/L [1] | DNQ at 2.9 µg/L | No [3] |
| Effluent | 84 µg/L [2] | 84 µg/L [2] | 26 µg/L | No [4] |

[1] Based on the lowest upstream ambient hardness of 13 mg/L (as $CaCO_3$)
[2] Based on receiving water hardness of 66 mg/L (as $CaCO_3$)
[3] Per Section 1.3, step 4 of the SIP.
[4] Per Section 1.3, step 6 of the SIP.

b. **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, bis (2 ethylhexyl) phthalate, copper, mercury, nitrate and nitrite, pathogens, and pH. WQBEL's for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Ammonia**

(a) **WQO.** The 1999 U.S. EPA NAWQC for the protection of freshwater aquatic life for total ammonia (the "1999 Criteria"), recommends acute (1-hour average; criteria maximum concentration or CMC) standards

based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. U.S. EPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature.

The U.S. EPA recently published national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (the "2013 Criteria"). The 2013 Criteria is an update to U.S. EPA's 1999 Criteria, and varies based on pH and temperature. Although the 2013 Criteria reflects the latest scientific knowledge on the toxicity of ammonia to certain freshwater aquatic life, including new toxicity data on sensitive freshwater mussels in the Family Unionidae, the species tested for development of the 2013 Criteria may not be present in some Central Valley waterways. The 2013 Criteria document therefore states that, *"unionid mussel species are not prevalent in some waters, such as the arid west…"* and provides that, *"In the case of ammonia, where a state demonstrates that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from that national criteria dataset to better represent the species present at the site."*

The Central Valley Water Board issued a 3 April 2014 *California Water Code Section 13267 Order for Information: 2013 Final Ammonia Criteria for Protection of Freshwater Aquatic Life* (13267 Order) requiring the Discharger to either participate in an individual or group study to determine the presence of mussels or submit a method of compliance for complying with effluent limitations calculated assuming mussels present using the 2013 Criteria. The Discharger submitted a letter, dated 9 July 2014, to the Central Valley Water Board indicating their intent to pursue an individual site-specific mussel study to evaluate the presence or absence of unionid mussels in Auburn Ravine near the effluent outfall with a report to be submitted by1 April 2015. In an older study, mussels were not found during sampling conducted in 2006 (*Table 2, Sensitive Freshwater Mussel Surveys in the Pacific Southwest Region: Assessment of Conservation Status*).

The Discharger provided the following report: *Literature Review Regarding The Current And/Or Historic Distribution Of Freshwater Mussels Relative To The City Of Auburn Wastewater Treatment Plant,* dated 31 March 2015. The report concluded that, while there are no records of freshwater mussels in the Upper Coon Upper Auburn Watershed, there are host fish species present and suitable habitat downstream of the Auburn WWTP. The potential presence of mussels downstream of the WWTP cannot be ruled out.

Studies are currently underway to determine how the latest scientific knowledge on the toxicity of ammonia reflected in the 2013 Criteria can be implemented in the Central Valley Region as part of a Basin Planning effort to adopt nutrient and ammonia objectives. Until the Basin Planning

process is completed, the Central Valley Water Board will continue to implement the 1999 Criteria to interpret the Basin Plan's narrative toxicity objective.

An effluent limitation for pH of 6.5 as an instantaneous minimum is included in the proposed permit based on protection of the Basin Plan objective for pH. Previous Order R5-2010-0090-01 contained an instantaneous maximum pH limitation of 8.0 which reflects a level consistently achievable by the Facility. Data collected over the previous permit term indicate that pH in the effluent exceeded 8.0 only once out of 1,065 samples collected. Therefore, at the request of the Discharger, this Order retains the more stringent instantaneous maximum pH limitation of 8.0.

The maximum permitted effluent pH is 8.0 for the City of Auburn WWTP. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5, however a site-specific pH limit of 8.0 has been established for discharges from the Facility as discussed in section IV.C.3.b.x. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the acute criterion. The resulting acute criterion is 5.62 mg/L.

A chronic criterion was calculated using the rolling 30-day average pH and temperature of the effluent for each day when paired temperature data and pH were measured using effluent data for pH and temperature from the Discharger's monthly monitoring reports from May 2012 to April 2015. The minimum observed 30-day average criteria was established as the applicable 30-day average chronic criterion, or 30-day CCC. The applicable 30-day CCC is 2.69 mg/L. The 4-day average concentration is derived in accordance with the U.S. EPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC's of 2.69 mg/L, the 4-day average concentration that should not be exceeded is 6.71 mg/L.

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, without treatment, would be harmful to fish and would violate the Basin Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and effluent limitations are required.

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

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative*

*assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" USEPA'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, USEPA 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 narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBEL's are required.

(c) **WQBEL's.** Previous Order R5-2010-0090-01 contained an average monthly effluent limitation (AMEL) of 1.9 mg/L and a maximum daily effluent limitation (MDEL) of 5.8 mg/L based on the 1999 ammonia criteria and data from 2005 to 2010. Order R5-2010-0090-01 also contained mass limits of 26 lbs/day as an AMEL and 81 lbs/day as an MDEL. The mass limits were calculated based on a permitted average dry weather flow of 1.67 MGD.

The Discharger conducted their own literature review. The Discharger's report *Literature Review Regarding The Current And/Or Historic Distribution Of Freshwater Mussels Relative To The City Of Auburn Wastewater Treatment Plant,* dated 31 March 2015, stated that "the potential presence of mussels downstream of the WWTP cannot be ruled out." The Discharger has not completed a mussels study for Auburn Ravine. Current protocol for determining ammonia effluent limitations is to use the USEPA's 1999 ammonia criteria.

Concentration based ammonia effluent limitations were recalculated for the City of Auburn WWTP, based on the 1999 ammonia criteria and new data from 2012 to 2015. The Central Valley Water Board calculates

WQBEL's in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA 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 AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL of 2.0 mg/L and an average weekly effluent limitation (AWEL) of 4.3 mg/L, based on the protection of the Basin Plan's narrative toxicity objective and using the 1999 ammonia criteria.

Mass based ammonia limitations were calculated based on the new concentration limitations; AMEL of 28 lbs/day and AWEL of 60 lbs/day.

(d) **Plant Performance and Attainability.** The Facility is currently designed to provide nitrification in one oxidation ditch. CDO R5-2010-0091-01 required final compliance with the effluent limitations for ammonia established in Order R5-2010-0090-01 by 1 September 2014. CDO R5-2010-0091-01 was rescinded 31 May 2013. Monitoring data collected, after rescission of the CDO, between 1 September 2014 and April 2015 indicates that the Discharger was out of compliance once under the ammonia effluent limitations in previous Order R5-2010-0090-01 and would be out of compliance with the new AMEL of 2.0 µg/L one time also based on 69 samples. The new AWEL would not have been exceeded during the same period. The Central Valley Water Board concludes, therefore, that compliance with these effluent limitations for ammonia is feasible

The City of Auburn has already proposed a number of secondary process upgrades to improve WWTP performance, add process redundancy, and comply with nutrient limitations. The project would construct a second oxidation ditch and associated facilities. The project has an estimated construction time of two years and is planned to start in ~~early~~ August 2016.

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

(a) **WQO.** The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed.

(b) **RPA Results.** Previous Order R5-2010-0090-01 did not contain effluent limitations for bis (2-ethylhexyl) phthalate but did specify using clean hands techniques for sampling and analysis.

The maximum effluent concentration (MEC) for for bis (2-ethylhexyl) phthalate was 6.3 µg/L, which exceeds the CTR criterion. Therefore, bis (2-ethylhexyl) phthalate in the discharge has a reasonable potential to

cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBEL's.** Due to no assimilative capacity, dilution credits are not allowed for development of the WQBEL's for bis (2-ethylhexyl) phthalate. This Order contains a final average monthly effluent limitation (AMEL) of 1.8 µg/L and a maximum daily effluent limitation (MDEL) 5.6 µg/L, based on the CTR criterion for the protection of human health.

This Order contains a provision to reopen the Order to remove or modify effluent limitations for bis (2-ethylhexyl) phthalate, if the Discharger is able to demonstrate that removal or relaxation of effluent limitations is appropriate.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 6.3 µg/L is greater than the applicable WQBEL's. However, there was only one exceedance (out of 53 samples collected between 2010 and 2015) of the MDEL and five exceedances of the AMEL. The Central Valley Water Board concludes, therefore, that compliance with these effluent limitations for bis (2-ethylhexyl) phthalate is inconsistent.

iii. **Copper**

(a) **WQO.** The California Toxics Rule (CTR) includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default U.S. EPA translators were used for the receiving water and effluent. The acute and chronic copper criteria for the receiving water and effluent are shown in the table below.

(b) **RPA Results.** Section IV.C.2.g of this Fact Sheet includes procedures for conducting the Reasonable Potential Analysis (RPA) for hardness-dependent CTR metals, such as copper. The CTR includes hardness-dependent criteria for copper for the receiving water. Based on four samples collected between May 2012 and April 2015, copper was detected in the upstream receiving water at a maximum concentration of 2.8 µg/L. Using the minimum reported receiving water hardness of 13 mg/L results in criteria of 1.6 µg/L (chronic) and 2.0 µg/L (acute), which results in reasonable potential to exceed both criteria.

The observed maximum effluent concentration (MEC) was 5 µg/L based on four samples collected between May 2012 and April 2015. The RPA was conducted using the receiving water hardness of 66 mg/L to calculate the criteria for comparison to the maximum effluent concentration.

The table below shows the specific criteria calculated for the RPA. There was reasonable potential for copper in the receiving water to exceed water quality criteria.

**Table F-17. Copper CTR Criteria Comparison**

| | Hardness | CTR Acute Criterion (Total Recoverable) | CTR Chronic Criterion (Total Recoverable) | Maximum Concentration (Total Recoverable) | Reasonable Potential? (Y/N) |
|---|---|---|---|---|---|
| Receiving Water | 13 mg/L | 2.0 µg/L | 1.6 µg/L | 2.8 µg/L | Yes [1] |
| Effluent with WER of 3.52 | 66 mg/L | 33 µg/L | 17 µg/L | 5 µg/L | No [2] |

[1] Per Section 1.3, step 4 of the SIP.
[2] Per Section 1.3, step 6 of the SIP.

The Discharger submitted a *City of Auburn Copper Water-Effect Ratio* (ECO:LOGIC) dated 28 May 2010. The Discharger's study followed USEPA's *2001 Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA 822-R-01-005). Following the streamlined procedure, the Discharger concluded that a dissolved WER for copper of 3.52, based on effluent data to represent low-flow, zero-dilution discharge conditions, is applicable to the discharge to Auburn Ravine.

Using the WER and the hardness of 66 mg/L, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 33 µg/L and 17 µg/L, respectively, as total recoverable copper. Because concentrations of copper in the effluent (MEC = 5 µg/L) do not exceed the applicable criteria, the effluent does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for protection of freshwater aquatic life for copper when using the site-specific WER.

However, the maximum receiving water concentration of copper exceeds the chronic criterion. Therefore, effluent limitations are necessary for copper.

(c) **WQBEL's.** Due to no assimilative capacity, dilution credits are not allowed for development of the WQBEL's for copper. Previous Order R5-2010-0090-01 did not consider the receiving water in the reasonable potential analysis. Previous Order R5-2010-0090-01 did not contain effluent limitations for copper because there was no reasonable potential for the effluent copper concentration to exceed the criteria. Because the maximum receiving water concentration of copper exceeds the chronic criterion, this Order must contain effluent limitations for copper. Incorporating the copper WER (3.52) results in an AMEL of 14 µg/L and an MDEL of 28 µg/L.

(d) **Plant Performance and Attainability.** Effluent limitations for copper are required because the receiving water maximum concentration exceeded the chronic criterion. The MEC of the effluent, with the WER, does not result in exceedances of the effluent limitations. The Central Valley Water Board concludes that compliance with the effluent limitations for copper is feasible.

iv. **Mercury**

(a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criterion). The CTR contains a human health criterion (based on

a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 C.F.R. part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) **RPA Results.** The maximum observed effluent mercury concentration was 0.037 µg/L which is below the criteria. Therefore, the effluent does not have reasonable potential to cause or contribute to an exceedance of the CTR criteria for mercury and this Order does not contain a concentration-based effluent limitation for mercury.

However, mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The discharge of mercury to surface waters in the Central Valley draining to the Sacramento San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta.

(c) **WQBEL's.** Order R5-2010-0090-01 contained an annual mercury mass-loading effluent limitation of 0.010 lbs/year based on the 303(d) listing of the Sacramento River, from Knights Landing to the Delta, to which Auburn Ravine is tributary. The mass-loading effluent limitation of 0.010 lbs/year is retained in this Order. This limitation ensures the mercury loading is continued to be maintained at the current level until a TMDL can be established and U.S. EPA develops mercury standards that are protective of human health and is not less stringent than the previous limit. If U.S. EPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) **Plant Performance and Attainability.** Based on available mercury data, the Central Valley Water Board concludes that immediate compliance with this effluent limitations is feasible.

v. **Nitrate and Nitrite**

(a) **WQO.** DPH 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. DPH has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

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

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, if untreated, will be harmful to fish and will violate the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that

converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia). Reasonable potential for nitrate and nitrite therefore exists and WQBEL's are required.

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

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" USEPA'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, USEPA recommends that, "POTW's should also be characterized for the possibility of chlorine and ammonia problems." (TSD, p. 50)

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

MCL would violate the Basin Plan narrative chemical constituents objective. Although the existing oxidation ditch provides nitrification and partial denitrification, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL's are required.

(c) **WQBEL's.** Previous Order R5-2010-0090-01 contained imitations for nitrate plus nitrite (10 mg/L) and for nitrite (1 mg/L). The limitation for nitrite is redundant and has been removed from this Order. Therefore, this Order retains the final AMEL for nitrate plus nitrite of 10 mg/L (total as N), as a monthly average based on the Primary MCL. This effluent limitation is 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. Since this Order retains the nitrate plus nitrite limitation from the previous order, the total nitrogen allowed in the effluent is the same.

In addition the proposed permit will contain an AWEL of 16 mg/L for nitrate plus nitrite.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 14 mg/L is greater than the applicable WQBEL's. Using data from 2012 to 2015, there would have been nine exceedances of the new AMEL out of 120 samples for 7.5% of the time. The average, at 6.3 mg/L, is lower than the limit of 10 µg/L as a monthly average. The Central Valley Water Board concludes, therefore, that compliance with the effluent limitation for nitrate plus nitrite is feasible.

vi. **Pathogens**

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

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

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

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

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

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

The beneficial uses of Auburn Ravine include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

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

once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

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

This Order contains effluent limitations for $BOD_5$, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBEL's for $BOD_5$ and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. $BOD_5$ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for $BOD_5$ and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily $BOD_5$ and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for $BOD_5$ and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's for $BOD_5$ and TSS of 10 mg/L and AWEL's for $BOD_5$ and TSS of 15 mg/L, which are technically based on the capability of a tertiary system. In addition to the AMEL and AWEL, an MDEL of 20 mg/L for $BOD_5$ and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. The effluent limitations in this Order for turbidity, $BOD_5$ and TSS, and total coliform organisms are the same as the previous Order.

(d) **Plant Performance and Attainability.** The Facility is designed to provide tertiary treatment for up to an average dry weather flow of 1.67 MGD and has approximately 24 million gallons of peak flow storage capacity. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations under all flow conditions is feasible.

vii. **pH**

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

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

Federal regulations at 40 C.F.R. §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.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" USEPA'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 1156 effluent samples taken from 2010 to 2015, the maximum pH reported was 7.7 and the minimum was 0.7. The Facility did not exceed the instantaneous maximum effluent limitation of 8.0. Since 2010, the maximum pH reported was 7.7. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBEL's for pH are required in this Order.

(c) **WQBEL's.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.0 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.

An effluent limitation for pH of 6.5 as an instantaneous minimum is included in this Order based on protection of the Basin Plan objective for

pH. Previous Order R5-2010-0090-01 contained an instantaneous maximum pH limitation of 8.0 which reflects a level consistently achievable by the Facility. Data collected over the previous permit term indicate that pH in the effluent exceeded 8.0 only once out of 1,065 samples collected. Therefore, at the request of the Discharger, this Order retains the more stringent instantaneous maximum pH limitation of 8.0.

(d) **Plant Performance and Attainability.** Analysis of the effluent data between 2012 and 2015 shows that the pH of the effluent is consistently between 6.5 to 8.0, with a maximum of 7.7 and an average of 7.1. The Regional Water Board concludes, therefore, that immediate compliance with the effluent limitations for pH is feasible.

4. **WQBEL Calculations**

a. This Order includes WQBEL's for ammonia, bis (2-ethylhexyl) phthalate, copper, nitrate and nitrite, pathogens, pH, and salinity (EC). The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

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

where:

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

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. **Basin Plan Objectives and MCLs.** For WQBEL's based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. **Aquatic Toxicity Criteria.** WQBEL's based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. **Human Health Criteria.** WQBEL's based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to ECA and a statistical multiplier was used to calculate the MDEL.

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

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

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

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

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

**Table F-18. Summary of Water Quality-Based Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | | | |
|---|---|---|---|---|---|---|---|
| | | Average Annual | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| ***Priority Pollutants*** | | | | | | | |
| Bis (2-ethylhexyl) phthalate | µg/L | -- | 1.8 | -- | 5.6 | -- | -- |
| Copper, Total Recoverable | µg/L | -- | 17 [1] | -- | 33 [1] | -- | -- |
| Mercury, Total Recoverable | lbs/month | -- | -- | -- | -- | -- | 0.010 [2] |
| ***Non-Conventional Pollutants*** | | | | | | | |
| Ammonia | mg/L | -- | 2.0 | 4.3 | 5.6 | -- | -- |
| | lbs/day | -- | 28 | 60 | 78 | | |
| Nitrate plus Nitrite | mg/L | -- | 10 | 16 | -- | -- | -- |
| pH | pH units | -- | -- | -- | -- | 6.5 | 8.0 |
| Total Coliform Organism [4] | MPN/100 mL | -- | 23 [3] | 2.2 [4] | -- | -- | 240 |

1 Incorporates WER of 3.52.
2 Monthly mass limit
3 Not to be exceeded more than once in 30 days
4 7-day median
5 To be determined at monitoring point UVS-001.

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 toxicity and requires the Discharger to

implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

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

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute 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 . USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

USEPA 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:

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

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00 .) As required in previous Order R5-2010-0090-01, the Monitoring and Reporting Program of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order requires the Discharger to submit to the Central Valley Water

Board an Initial Investigative TRE Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

As shown in the table below, based on chronic WET testing performed by the Discharger from 2012 through February 2015, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

**Table F-19. Whole Effluent Chronic Toxicity Testing Results**

| Date | Test (Species) | Survival/Growth | Units |
|---|---|---|---|
| 11/05/2013 | Chronic Toxicity (Species 1) | 1 | TUc |
| 11/05/2013 | Chronic Toxicity (Species 2) | 1 | TUc |
| 11/05/2013 | Chronic Toxicity (Species 2) | 1 | TUc |
| 11/05/2013 | Chronic Toxicity (Species 3) | 1 | TUc |
| 12/03/2013 | Chronic Toxicity (Species 2) | 1 | TUc |
| 12/17/2013 | Chronic Toxicity (Species 2) | 1 | TUc |
| 01/07/2014 | Chronic Toxicity (Species 2) | 1 | TUc |
| 01/20/2014 | Chronic Toxicity (Species 2) | 1 | TUc |
| 02/04/2014 | Chronic Toxicity (Species 1) | 1 | TUc |
| 02/04/2014 | Chronic Toxicity (Species 2) | 1 | TUc |
| 02/04/2014 | Chronic Toxicity (Species 3) | 1 | TUc |
| 05/06/2014 | Chronic Toxicity (Species 1) | 1 | TUc |
| 05/06/2014 | Chronic Toxicity (Species 2) | 1 | TUc |
| 05/06/2014 | Chronic Toxicity (Species 3) | 1 | TUc |
| 08/05/2014 | Chronic Toxicity (Species 1) | 1 | TUc |
| 08/05/2014 | Chronic Toxicity (Species 2) | 1 | TUc |
| 08/05/2014 | Chronic Toxicity (Species 3) | 1 | TUc |
| 11/05/2014 | Chronic Toxicity (Species 1) | 1 | TUc |
| 11/05/2014 | Chronic Toxicity (Species 2) | 1 | TUc |
| 11/05/2014 | Chronic Toxicity (Species 3) | 1 | TUc |
| 02/03/2015 | Chronic Toxicity (Species 1) | 1 | TUc |
| 02/03/2015 | Chronic Toxicity (Species 2) | 1 | TUc |
| 02/03/2015 | Chronic Toxicity (Species 3) | 1 | TUc |

However, in fourth quarter 2015, the Discharger reported that the three species chronic toxicity testing indicated a reduction in reproduction of *Ceriodaphnia dubia* exposed to 100% effluent from those exposed to laboratory control water. The Discharger's contract laboratory provided a reproduction result of >1.0 TUc which equals the numeric toxicity monitoring trigger in Special Provision VI.C.2.a.ii of the existing permit. Accelerated monitoring samples were collected in November and December 2015, which provided a reproduction result of >1.0. On 15 January 2016, the Discharger submitted a TRE Action Plan, which scheduled Data Review

and Sampling Protocol Evaluation for February 2016 and additional sampling and monitoring actions beginning in June 2016.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. section 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective and the narrative chronic toxicity effluent limitation, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan or conduct a Toxicity Evaluation Study approved by the Executive Officer. The numeric toxicity monitoring trigger (>1.0 TUc) is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

## 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

[1] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

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

Mass-based effluent limitations were calculated based upon the design flow (1.67 mgd Average Dry Weather 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. However, for toxic pollutants and pollutant parameters in water quality permitting, USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. "*First, the basis for the 7-day average for POTW's derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order uses maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia and zinc as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for $BOD_5$, pH, total coliform organisms, and TSS, 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.

For effluent limitations based on Primary and Secondary MCLs, except nitrate and nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations.

3. **Satisfaction of Anti-Backsliding Requirements**

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for nitrite and diazinon. The effluent limitations for these pollutants are less stringent than those in Order R5-2010-0090-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits "*except in compliance with Section 303(d)(4).*" CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

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

on such TMDL's or 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.

Auburn Ravine is considered an attainment water for nitrite because the receiving water is **not** listed as impaired on the 303(d) list for this constituent.[1] As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Previous Order R5-2010-0090-01 contained both effluent limitations for nitrate plus nitrite and for nitrite alone. Central Valley Water Board staff has determined that the nitrite limitation is redundant and this Order retains only the limitation for nitrate plus nitrite. While this action would allow for an increase in nitrite, the total nitrogen allowed in the effluent would remain the same; 10 mg/L. Thus, removal of the effluent limitations for nitrite from Order R5-2016-XXXX meets the exception in CWA section 303(d)(4)(B) and complies with the Antidegradation Policies.

Auburn Ravine is considered an attainment water for diazinon because the receiving water is **not** currently listed as impaired on the 303(d) list for this constituent. Furthermore, the diazinon TMDL was established specifically for the stretch of the Sacramento River from Shasta Dam to the I Street Bridge and in the 2010 303(d) list update, USEPA removed diazinon from the list of pollutants exceeding water quality standards in this stretch of river. Currently, a diazinon water quality objective for Auburn Ravine has not been established; hence, reasonable potential does not exist. Therefore, previous Order R5-2010-0090 inappropriately established diazinon effluent limitations. Thus, removal of the effluent limitations for diazinon from Order R5-2016-XXXX meets the exception in CWA section 303(d)(4)(B) because it complies with the Antidegradation Policies, as discussed in section IV.D.4, below.

A proposed basin plan amendment that would apply a WQO for diazinon in Auburn Ravine has been approved by the Central Valley Water Board and SWRCB. It is awaiting approval by the Office of Administrative Law. Previous Order R5-2010-0090-01 contained monthly effluent monitoring requirements for diazinon with effluent limitations. This Order does not contain effluent limitations for diazinon because reasonable potential does not exist, but does contain a reopener provision should the proposed Basin Plan amendment be approved. This Order also contains quarterly effluent monitoring requirements in an effort to monitor for the presence of diazinon in the effluent discharged to Auburn Ravine. Also, if the effluent discharge indicates an upward trend in diazinon concentrations, then the Board may require the Discharger to submit a diazinon study.

b. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

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

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for total residual chlorine, chloroform, dibromochloromethane, and dichlorobromomethane based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The City installed a new UV Disinfection system in 2012 and took the chlorine disinfection system offline. City representatives state that chlorine is not used for cleaning or maintenance purposes. Therefore, there is no longer reasonable potential for total residual chlorine, chloroform, dibromochloromethane, and dichlorobromomethane. Thus, removal of the effluent limitations for total residual chlorine, chloroform, dibromochloromethane, and dichlorobromomethane from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for the persistent chlorinated hydrocarbon pesticides, beta-Endosulfan, Endrin Aldehyde, and Heptachlor, based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. Since 2010, the three pesticides were sampled and analyzed monthly, but no detections were reported in the monitoring reports. Therefore, there is no longer reasonable potential for beta-Endosulfan, Endrin Aldehyde, and Heptachlor. Thus, removal of the effluent limitations for beta-Endosulfan, Endrin Aldehyde, and Heptachlor from Order R5-2016-XXXX meets the exception in CWA section 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for aluminum, based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The maximum receiving water concentration of aluminum was 200 µg/L and the MEC was 270 µg/L. The highest annual average effluent concentration is 71 µg/L, which does not exceed the MCL. Therefore, reasonable potential does not exist for aluminum to exceed the criteria. Thus, removal of the effluent limitations for aluminum from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for EC, based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. A review of the Discharger's monitoring reports for 2012 to 2015, shows an average effluent EC of 321 µmhos/cm, with a range from 48 µmhos/cm to 437 µmhos/cm. These levels do not exceed the Secondary MCL. The discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity and this Order does not contain effluent limitations for salinity. Thus, removal of the effluent limitations for EC from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained effluent limitations for lead (AMEL = 1.3 µg/L and MDEL = 2.2 µg/L) with criteria calculated to be 38 µg/L (acute) and 1.5 µg/L (chronic) based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The observed maximum effluent concentration (MEC) was 1.2 µg/L based on 36 effluent samples collected between May 2012 and April 2015. The criteria calculated for lead were 37 µg/L and 1.5 µg/L. The discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water

quality objectives for lead and this Order does not contain effluent limitations for lead. Thus, removal of the effluent limitations for lead from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

The previous permit, WDR Order R5-2010-0090-01 contained an effluent limitation for manganese (50 µg/L as a monthly average) based on data available in 2010. New information is available in 2015 and 2016, which was not available at the time of issuance of the previous permit. The MEC for manganese was 61 µg/L; however, the average concentration of 14 µg/L manganese, does not exceed the criterion. Therefore, reasonable potential does not exist for manganese and this Order does not contain effluent limitations for manganese. Thus, removal of the effluent limitations for manganese from Order R5-2016-XXXX meets the exception in CWA section CWA 402(o)(2)(B)(i) and complies with the Antidegradation Policies.

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 WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. 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.

5. **Stringency of Requirements for Individual Pollutants**

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, $BOD_5$, TSS, and pH. Restrictions on flow, $BOD_5$, TSS, and pH are discussed in section IV.B of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to 30 May, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to 30 May, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

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

**Table F-20. Summary of Final Effluent Limitations**

| Parameter | Units | Effluent Limitations | | | | | | Basis [1] |
|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Average Monthly | Average Weekly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum | |
| Average Dry Weather Flow | mgd | -- | 1.67 [2] | -- | -- | -- | -- | DC |
| ***Conventional Pollutants*** | | | | | | | | |
| Biochemical Oxygen Demand (5-day @ 20°C) | mg/L | -- | 10 | 15 | 20 | -- | -- | TTC |
| | lbs/day [3] | -- | 140 | 210 | 280 | -- | -- | |
| Total Suspended Solids | mg/L | -- | 10 | 15 | 20 | -- | -- | TTC |
| | lbs/day [3] | -- | 140 | 210 | 280 | -- | -- | |
| pH | pH units | -- | -- | -- | -- | 6.5 | 8.0 | BP, PP |
| ***Priority Pollutants*** | | | | | | | | |
| Bis (2-ethylhexyl) phthalate | µg/L | -- | 1.8 | -- | 5.6 | -- | -- | CTR |
| Copper, Total Recoverable | µg/L | -- | 17 | -- | 33 | -- | -- | CTR |
| Mercury, Total Recoverable | lbs/12 months | 0.010 [4] | -- | -- | -- | -- | -- | PO |
| ***Non-Conventional Pollutants*** | | | | | | | | |
| Ammonia Nitrogen, Total (as N) | mg/L | -- | 2.0 | 4.3 | -- | -- | -- | NAWQC |
| | lbs/day | -- | 28 | 60 | -- | -- | -- | -- |
| Nitrate plus Nitrite (as N) | mg/L | -- | 10 | 16 | -- | -- | -- | MCL |
| Total Coliform Organisms [5] | MPN/100mL | -- | 23 [6] | 2.2 [7] | -- | -- | 240 | Title 22 |

[1] AGR – Based on agriculture needs
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.
DC – Based on the design capacity of the Facility.
MCL – Based on the Primary Maximum Contaminant Level.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
PO – Based on effluent limitation in previous order R5-2005-0030
PP – Based on treatment plant performance
SMCL – Based on the Secondary Maximum Contaminant Level.
TMDL – Based on the TMDL for salinity and boron in the lower San Joaquin River.
TTC – Based on tertiary treatment capability; effluent limitations reflect a properly operated tertiary treatment plant.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] The average dry weather discharge flow shall not exceed 1.67 MGD. The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (i.e., July, August, and September).

[3] Based on a design flow of 1.67 MGD.

[4] The total annual mass discharge of mercury from the Facility shall not exceed 0.010 lbs as a 12-month average.

[5] To be determined at monitoring point UVS-001.

[6] Effluent total coliform organisms are not to exceed 23 MPN/100 mL more than once in any 30-day period.

[7] Applied as a 7-day median effluent limitation.

## E. Interim Effluent Limitations – Not Applicable

## F. Land Discharge Specifications

a. **Equalization Pond Operating Requirements.** The operation and maintenance specifications for the Equalization Ponds are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from Order R5-2010-0090-01. In addition, reporting requirements related to use of the Equalization Ponds are required to monitor their use and the potential impact on groundwater.

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

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

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

(b) Weeds shall be minimized.

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

iii. Freeboard shall not be less than 2 feet (measured vertically to the lowest point of overflow), except if lesser freeboard does not threaten the integrity of the pond, no overflow of the pond occurs, and lesser freeboard is due to direct precipitation or storm water runoff occurring as a result of annual precipitation with greater than a 100-year recurrence interval, or a storm event with an intensity greater than a 25-year, 24-hour storm event.

iv. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas (or property owned by the Discharger).

v. As a means of discerning compliance with the operating specification contained in section VI.C.4.e.iv above, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.

vi. Ponds shall not have a pH less than 6.5 or greater than 8.5.

### G. Recycling Specifications – Not Applicable

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

### A. Surface Water

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

### B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.
3. Total dissolved solids, have the potential to degrade groundwater quality at this site because there is little ability for attenuation in the shallow permeable vadose zone beneath this Facility. According to Ayers and Westcot, dissolved solids can cause yield or vegetative growth reductions of sensitive crops if present in excess of 450 mg/L in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of total dissolved solids is the narrative Chemical Constituents objective, which is applied following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 450 mg/L for total dissolved solids, based on Ayers and Westcot, is appropriate to apply the narrative Chemical Constituents objective to protect the unrestricted agricultural use of groundwater in the absence of information to support a less protective limit.
4. Nitrate, has the potential to degrade groundwater quality because there is little ability for attenuation in the shallow permeable vadose zone beneath the Facility. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California primary MCL for nitrate plus nitrite is equivalent to 10 mg/L as nitrogen, and groundwater beneath the facility is designated as municipal or domestic supply. It is therefore appropriate to adopt a numerical groundwater limitation of 10 mg/L for nitrate plus nitrite as nitrogen to implement the Chemical Constituents objective to protect the municipal and domestic use of groundwater.
5. Ammonia has the potential to degrade groundwater quality because there is little ability for ammonia attenuation in the shallow permeable vadose zone at this site. According to Amoore and Hautala [1], who evaluated odor of ammonia in water, the odor threshold for ammonia in water is 1.5 mg/L (as $NH_4$). These authors studied the concentration of chemicals in air that caused adverse odors and then calculated the concentration in water that would be equivalent to that amount in air. Therefore, it is appropriate to use the data contained therein to apply the narrative Tastes and Odors water quality

[1] Amoore, J.E. and E. Hautala, Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution, Journal of Applied Toxicology, Vol. 3, No. 6, (1983).

objective. Concentrations that exceed this value can impair the municipal or domestic use of the resource by causing adverse odors. The applicable water quality objective to protect the municipal and domestic use from discharges of odor producing substances is the narrative Tastes and Odors objective, which is applied following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 1.5 mg/L for ammonia (as $NH_4$), based on Amoore and Hautala, is relevant and appropriate to apply the narrative Tastes and Odors objective to protect the municipal and domestic use of groundwater.

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

7. Order No. R5-2005-0030 established, and Order R5-2010-0090-01 continued, groundwater limitations for total coliform organisms, total dissolved solids, nitrate, and ammonia. Groundwater limitations for these parameters are retained in this Order and are necessary to protect the beneficial uses of the underlying groundwater.

8. In a Notice of Violation (NOV) dated 6 November 2015, the Compliance and Enforcement Section of the Central Valley Water Board informed the City of Auburn (Discharger) that the discharge of waste from the Facility appears to have impacted groundwater with total coliform organisms, ammonia, total dissolved solids, and nitrate plus nitrite. The NOV required that the Discharger submit a technical report by 1 January 2016 that contains (a) a proposal to evaluate the extent of groundwater contamination for total coliform organisms, ammonia, TDS, and nitrogen using either temporary probes or permanent monitoring wells, and (b) an engineering feasibility study (EFS) evaluating the corrective actions which could be implemented to remediate and prevent any future contamination.

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

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this

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

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

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

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. **Whole Effluent Toxicity**This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. (For the discharge to Auburn Ravine, there is a site-specific WER for copper of 3.52 and an incomplete WER for aluminum.) If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. **Drinking Water Policy.** On 26 July 2013 the Central Valley Water Board adopted Resolution No. R5-2013-0098 amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.

g. **Diazinon Proposed Basin Plan Amendment.** Diazinon is a pesticide that has been banned for residential use, however, it sometimes is still detected in surface waters. There are existing Water Quality Objectives in the Basin Plan for diazinon in the Sacramento River. In addition, Central Valley Water Board staff is developing a Basin Plan Amendment to provide an implementation plan for NPDES-permitted domestic wastewater dischargers. Currently approved by the Central Valley Water Board and SWRCB but not the Office of Administrative Law, there is a proposed basin plan amendment which would apply the Water Quality Objective for diazinon to Auburn Ravine. This Order will be reopened to modify diazinon effluent limitations, as appropriate, in accordance with an amendment to the Basin Plan.

h. **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.

i. **Dilution/Mixing Zone Study.** In order to allow dilution credits for the calculation of WQBELs, the Discharger must submit an approved Dilution/Mixing Zone Study, in accordance with a workplan submitted to and approved by the Regional Water Board, which meets all of the requirements of Section 1.4.2.2 of the SIP. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor.

2. **Special Studies and Additional Monitoring Requirements**

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00.) Based on whole effluent chronic toxicity testing performed by the Discharger from 2013 through 2015, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a TRE Workplan in accordance with U.S. EPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been demonstrated, except for chronic toxicity for *Seriodaphnia dubia* for which the Discharger may choose to conduct a site-specific Toxicity Evaluation Study instead.

**Monitoring Trigger.** A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

**Accelerated Monitoring.** The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "*EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.*" Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not

present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-2), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

**TRE Guidance.** The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

i. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.

ii. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.

iii. *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition*, EPA 600/6-91/003, February 1991.

iv. *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.

v. *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA/600/R-92/080, September 1993.

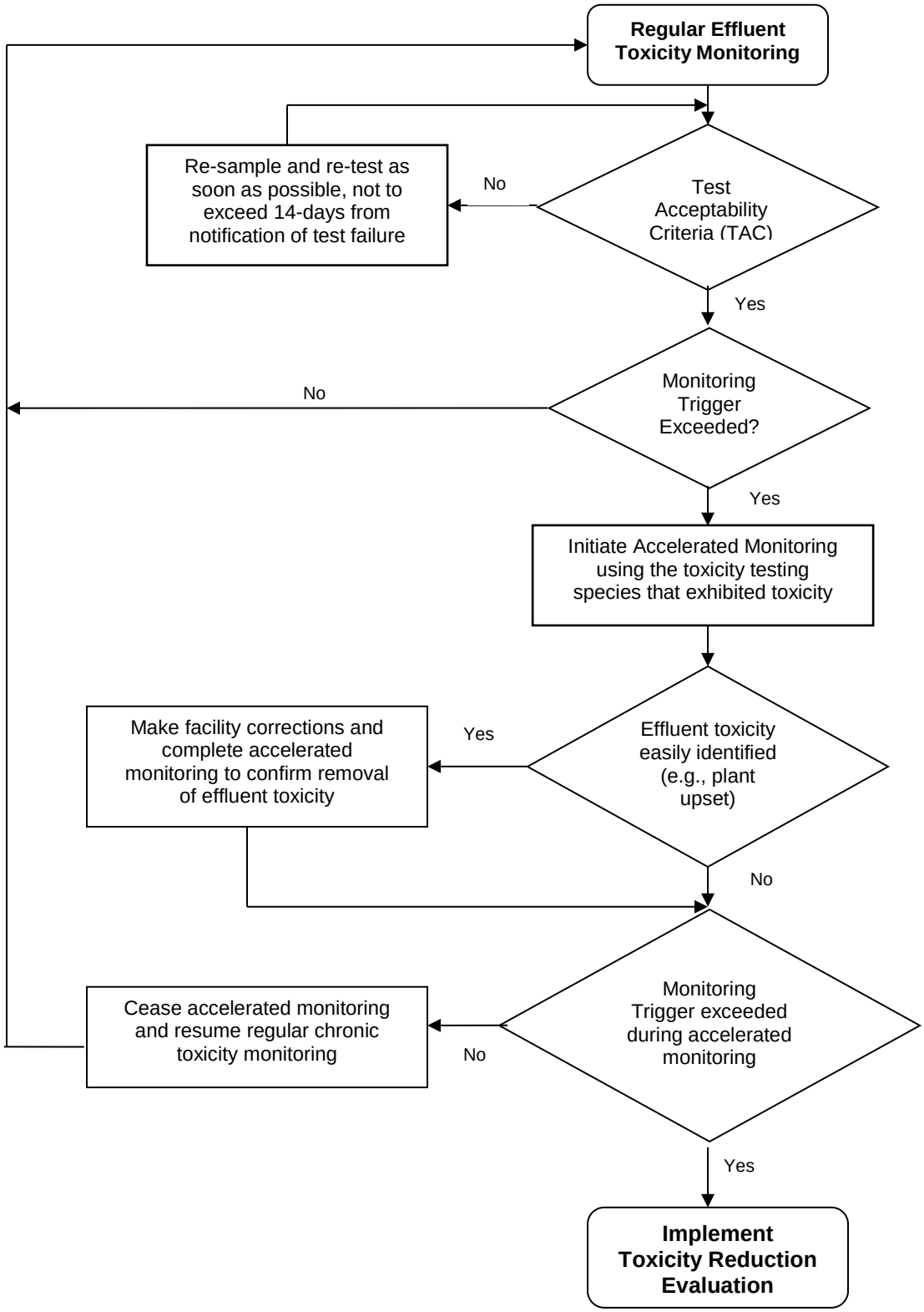
vi. *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition*, EPA 600/R-92/081, September 1993.

vii. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition*, EPA-821-R-02-012, October 2002.

viii. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA-821-R-02-013, October 2002.

ix. Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

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



b. **Site-specific Toxicity Evaluation Study**. The Facility serves a population of approximately 13,800 and provides tertiary level treatment of the municipal wastewater disinfected by UV treatment. Sources of wastewater include commercial, industrial, and domestic sources within the City of Auburn. The discharge is a high-quality effluent that indicates low-level toxicity at times. Results from the Discharger's fourth quarter 2015 effluent three species chronic toxicity testing indicated a reduction in reproduction of *Ceriodaphnia dubia* exposed to 100 percent effluent from those exposed to laboratory control water. Accelerated monitoring samples were collected in November and December 2015, which provided a reproduction result of >1.0. On 15 January 2016, the Discharger submitted a TRE Action Plan, which scheduled Data Review and Sampling Protocol Evaluation for February 2016 and additional sampling and monitoring actions beginning in June 2016. Contingent upon approval of the Executive Officer, this provision allows the Discharger to conduct a site-specific Toxicity Evaluation Study to investigate the cause of toxicity, individually or as part of a coordinated group effort with other dischargers that evaluate low level (TUc ≤ 2) and intermittent toxicity in effluent disinfected by an UV system. The study can be conducted in lieu of a TRE/TIE, unless the toxicity increases above 2 TUc, at which point the Discharger must conduct a TRE/TIE. Some studies completed within the Central Valley Region focusing on the role of the UV process in causing toxicity indicated, though not conclusively, that free radicals may play a role in the observed toxicity in effluent disinfected by a UV system (City of Woodland TIE/TRE findings from 2009-2014, Robertson-Bryan, Inc.).

c. **Groundwater Evaluation.** In a Notice of Violation (NOV) dated 6 November 2015, the Compliance and Enforcement Section of the Central Valley Water Board informed the City of Auburn that the discharge of waste from the Facility appears to have impacted groundwater with total coliform organisms, ammonia, total dissolved solids, and nitrate plus nitrite. The NOV required that the City of Auburn submit a technical report by 1 January 2016 that contains (a) a proposal to evaluate the extent of groundwater contamination for total coliform organisms, ammonia, TDS, and nitrogen using either temporary probes or permanent monitoring wells, and (b) an engineering feasibility study (EFS) evaluating the corrective actions which could be implemented to remediate and prevent any future contamination.

On 18 December 2015, the Discharger submitted the report titled *City of Auburn Technical Report, Wastewater Treatment Plant, Groundwater Issues/Engineering Feasibility Study*. In a letter dated 4 April 2016, the Compliance and Enforcement Section of the Central Valley Water Board required the Discharger to begin groundwater monitoring for ammonia, total dissolved solids, and nitrate plus nitrite on a quarterly basis and to submit the following:

a. A Sampling and Analysis Plan by 1 May 2016;

b. A proposal to evaluate the nature and extent of the groundwater limitation violations for ammonia, total dissolved solids, and nitrate plus nitrite by 1 June 2016; and

c. A summary report regarding total coliform organisms by 1 February 2017.

The Discharger shall implement the 4 April 2016 letter and any future directives from the Central Valley Water Board.

3. **Best Management Practices and Pollution Prevention**

a. **Salinity Evaluation and Minimization Plan.**

i. The Discharger shall continue to implement the existing salinity evaluation and minimization plan to address sources of salinity from the Facility. The Discharger shall provide annual reports discussing the effectiveness of implementing the salinity evaluation and minimization plan, Discussion of the plan effectiveness shall include the following:

- A description of the measures that have been implemented to address salinity in the discharge;
- An assessment of the effectiveness of the implemented measures; and
- The cost of implementing those measures.

The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

ii. The salinity evaluation and minimization plan shall be reviewed and updated if the effluent annual average calendar year electrical conductivity concentration is greater than 700 µmhos/cm. If the plan must be updated, it shall be submitted **by 1 April following the calendar year in which the effluent electrical conductivity annual average of 700 µmhos/cm was exceeded**.

4. **Construction, Operation, and Maintenance Specifications**

a. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 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.

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

The 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 DPH.

The UV system shall also conform to all requirements and operating specifications of the NWRI guidelines. A memorandum dated 1 November 2004 issued by DPH 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 $mJ/cm^2$. Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 $mJ/cm^2$ 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 Municipal Facilities (POTW's Only)**

   a. **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 Monitoring and Reporting Requirements for the General Order were amended by Water Quality Order WQ 2008-0002-EXEC on 20 February 2008. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one 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 (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

   Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

6. **Other Special Provisions – Not Applicable**

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., flow measurement and $BOD_5$ and TSS reduction requirements). The monitoring frequencies for flow (continuous) and $BOD_5$ and TSS (both 3/week) have been retained from Order R5-2010-0090-01.

### B. Effluent Monitoring

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for flow and pH (both continuous), bis (2-ethylhexyl) phthalate (1/month), copper (1/month), ammonia (2/week), Total Coliform Organisms (3/week), and turbidity (continuous), have been retained from Order R5-2010-0090-01 to determine compliance with effluent limitations for these parameters.
3. Monitoring data collected over the previous permit term indicates tha the effluent was consistently in compliance with the effluent limitations for $BOD_5$, TSS, mercury, nitate, and nitrite. Therefore, this Order reduces the effluent monitoring frequency from three times per week to once per week for $BOD_5$, TSS, from monthly to quarterly for mercury, and from twice per month to once per month for nitrate and nitrite. The Central Valley Water Board finds that this frequency is sufficient to determine compliance with the applicable effluent limitations.
4. Monitoring data collected over the previous permit term for beta-Endosulfan, Endrin Aldehyde, Heptachlor, Total Residual Chlorine, chloroform, dibromochloromethane, dichlorobromomethane, aluminum, diazinon, EC, lead, and manganese, did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2010-0090-01.
5. 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 certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

   Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for dissolved oxygen, and pH, and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II)

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

## 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.

### 2. Groundwater

a. Water Code section 13267 states, in part, "(a) A *Regional Water Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation…, the Regional Water Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.*" The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, a Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution No. 68-16 and the Basin Plan.

c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

### E. Other Monitoring Requirements

#### 1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.b. of this Order. Biosolids disposal requirements are imposed pursuant to 40 C.F.R. part 503 to protect public health and prevent groundwater degradation.

#### 2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

#### 3. UV Disinfection System Monitoring

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

#### 4. Equalization Pond Monitoring

Equalization pond monitoring is required to ensure proper operation of the equalization ponds. Weekly monitoring for freeboard, pH, electrical conductivity, odors, and dissolved oxygen has been retained from Order R5-2010-0090-01.

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

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

## VIII. PUBLIC PARTICIPATION

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

### A. Notification of Interested Parties

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

- Direct mail to several interested parties on XX XXXX 2016;
- Email to several interested parties on XX XXXX 2016;
- Publishing in the Auburn Journal on XX XXXX 2016;
- Posting on the Central Valley Water Boards website at http://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders since XX XXXX 2016;
- Posting on the City of Auburn website at http://www.auburn.ca.gov/services/PublicWorks since XX XXXX 2016;
- Posting at the nearest US Postal Service office since XX XXXX 2016; and
- Posting at the nearest……since XX XXXX 2016.

Since XX XXXX 2016, the public has had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/board_info/meetings/

### B. Written Comments

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

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on XX XXXX 2016.

### 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: | XX June 2016 |
| Time: | 8:30 a.m. |
| Location: | Regional Water Quality Control Board, Central Valley Region<br>11020 Sun Center Dr., Suite #200<br>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 aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

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

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

**E. Information and Copying**

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

**F. Register of Interested Persons**

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

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Elizabeth Thayer at (916) 464-4671 or beth.thayer@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 | 71 | 200 | 200 | 750 | 87 | -- | -- | -- | 200 | No |
| Ammonia | mg/L | 5.6 | -- | 2.0 | 4.3 | 2.0 | -- | -- | -- | -- | Yes |
| Bis (2-ethylhexyl) phthalate | µg/L | 6.3 | -- | 1.8 | -- | -- | 1.8 | -- | -- | -- | Yes |
| Cadmium | µg/L | ND | ND | 1.6 | 2.5 | 1.6 | -- | -- | -- | -- | No |
| Chlorine Residual | mg/L | -- | -- | 0.011 | 0.019 | 0.011 | -- | -- | -- | -- | No |
| Chloroform | µg/L | -- | -- | 1.1 | -- | -- | -- | -- | -- | 1.1 | No |
| Chromium III | µg/L | DNQ | DNQ | 150 | 1200 | 150 | -- | -- | -- | -- | No |
| Copper | µg/L | 5 | 2.8 | 6.5 | 9.5 | 6.5 | -- | -- | -- | -- | Yes [1] |
| Diazinon | µg/L | 0.21 | -- | -- | -- | -- | -- | -- | -- | -- | No |
| Dibromochloromethane | µg/L | -- | -- | 0.41 | -- | -- | 0.41 | -- | -- | -- | No |
| Dichlorobromomethane | µg/L | -- | -- | 0.56 | -- | -- | 0.56 | -- | -- | -- | No |
| EC | µmhos/cm | 437 | -- | 900 | -- | -- | -- | -- | -- | 900 | No |
| Lead | µg/L | 1.4 | DNQ | 1.5 | 37 | 1.5 | -- | -- | -- | -- | No |
| Manganese | µg/L | 14 | -- | 50 | -- | -- | -- | -- | -- | 50 | No |
| Mercury | Lbs/month | -- | -- | 0.010 | -- | -- | -- | -- | -- | -- | No |
| Nickel | µg/L | 3.8 | DNQ | 37 | 330 | 37 | -- | -- | -- | -- | No |
| Nitrate + Nitrite | mg/L | -- | -- | 10 | -- | -- | -- | -- | -- | 10 | Yes |
| Persistent Chlorinated Hydrocarbon Pesticides | µg/L | ND | -- | ND | -- | -- | -- | -- | ND | -- | No |
| Silver | µg/L | ND | ND | 0.99 | -- | 0.99 | -- | -- | -- | -- | No |
| Zinc | µg/L | 26 | DNQ | 84 | 84 | 84 | -- | -- | -- | -- | No |

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

Footnotes:
(1) Upstream receiving water concentration exceeded criterion.

# ATTACHMENT H – CALCULATION OF WQBEL'S

**Human Health WQBEL's Calculations**

| Parameter | Units | Criteria | Mean Background Concentration | Dilution Factor | MDEL/AMEL Multiplier | AMEL Multiplier | AMEL | AWEL | MDEL |
|---|---|---|---|---|---|---|---|---|---|
| Bis (2-ethylhexyl) phthalate | µg/L | 1.8 | -- | 0 | 3.12 | 2.90 | 1.8 | -- | 5.6 |
| Nitrate Nitrogen, Total (as N) | mg/L | 10 | -- | 0 | 1.85 | 1.45 | 10 | 16 | -- |

**Aquatic Life WQBEL's Calculations**

| Parameter | Units | Criteria | | Dilution Factors | | Aquatic Life Calculations | | | | | | | Final Effluent Limitations | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CMC | CCC | CMC | CCC | ECA Multiplier$_{acute}$ | LTA$_{acute}$ | ECA Multiplier$_{chronic}$ | LTA$_{chronic}$ | AMEL Multiplier$_{95}$ | AWEL Multiplier | MDEL Multiplier$_{99}$ | AMEL[1] | AWEL[2] | MDEL[3] |
| Ammonia Nitrogen, Total (as N) | mg/L | 5.62 | 2.69 | 0 | 0 | 0.16 | 0.9 | 0.59 | 1.59 | 2.25 | 4.76 | -- | 2.02 | 4.27 | -- |
| Copper, Total Recoverable | µg/L | 6.5 | 9.5 | 3.52 [4] | 3.52 [4] | 0.32 | 10.6 | 0.53 | 8.97 | 1.55 | -- | 3.11 | 17 | -- | 33 |

1 Average Monthly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 95th percentile occurrence probability.
2 Average Weekly Effluent Limitations are calculated according to Section 1.4 of the SIP using a 98th percentile occurrence probability.
3 Maximum Daily Effluent Limitations are calculated according to Section 1.4 of the SIP using a 99th percentile occurrence probability.
4 Water Effect Ratio (WER) of 3.52.