

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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**ORDER R5-2012-XXXX
NPDES NO. CA0079545**

**WASTE DISCHARGE REQUIREMENTS FOR THE
SOUTHERN CALIFORNIA EDISON COMPANY
BIG CREEK POWERHOUSE NO. 1
DOMESTIC WASTEWATER TREATMENT PLANT
FRESNO COUNTY**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	Southern California Edison Company
Name of Facility	Big Creek Powerhouse No. 1 Domestic Wastewater Treatment Plant
Facility Address	Spruce Avenue, Big Creek, CA 93605
	Fresno County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the Southern California Edison Company from the discharge point identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point No.	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Disinfected Tertiary Treated Wastewater	37° 12' 08" N	119° 14' 38" W	Big Creek

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	<Adoption Date>
This Order shall become effective on:	<Effective Date>
This Order shall expire on:	<Expiration Date>
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	<u><180 days prior to the Order expiration date></u>

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

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Southern California Edison Company
Name of Facility	Big Creek Powerhouse No. 1 Domestic Wastewater Treatment Plant
Facility Address	Spruce Avenue
	Big Creek, CA 93605
	Fresno County
Facility Contact, Title, and Phone	Tod Cameron Gibson, Facility Manager (559) 893-2030
Mailing Address	P.O. Box 100, Big Creek, CA 93605
Type of Facility	Domestic Wastewater Treatment Plant
Facility Design Flow	0.06 million gallons per day

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Central Valley Water Board), finds:

A. Background. The Southern California Edison Company (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2005-0156 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079545. The Discharger submitted a Report of Waste Discharge (ROWD), dated 22 April 2010, and applied for a NPDES permit renewal to discharge a monthly average discharge flow of up to 0.023 million gallons per day (mgd) of treated domestic wastewater from the Big Creek Powerhouse No. 1 Domestic Wastewater Treatment Plant (WWTP), hereinafter Facility.

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

B. Facility Description. The Discharger owns and operates a domestic/non-municipal sewage collection, treatment, and disposal facility. The treatment system consists of a rotating brush screen designed to remove paper and other solid wastes from the influent, a grit chamber, an anoxic zone, an aerobic zone, and membrane filtration. Liquid aluminum sulfate is injected in the anoxic chamber for coagulation and caustic soda is injected in the aerobic chamber for pH control. The tertiary treated effluent is disinfected using ultraviolet light. Solid wastes generated during primary treatment are transferred to a dumpster and are hauled offsite. Sludge is processed in a sludge bagging and dewatering system at the WWTP. The WWTP also includes a backup generator that can provide 100% of the power necessary to run the treatment system. An overflow pond is adjacent to the Facility for storage of flow in the event of a treatment system failure or major maintenance. Disinfected tertiary treated wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Big Creek at a point latitude 37° 12' 08" N and longitude 119° 14' 38" W. Big Creek is a water of the

United States and a tributary to the San Joaquin River. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (CWC; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this Facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).
- D. 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 Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under CWC section 13389, this action to adopt a NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 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. There are no applicable technology-based effluent limitations for this discharge.
- G. Water Quality-based Effluent Limitations (WQBELs).** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as technology equivalence requirements, which are necessary to achieve water quality standards. The Central Valley Water Board has considered the factors listed in CWC section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

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

criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Central Valley Water Board adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (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. The Basin Plan at page II-2.00 states that the "...beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not specifically identify beneficial uses for Big Creek, but does identify present and potential uses for the San Joaquin River from its sources to Millerton Lake, to which Big Creek is tributary. In addition, the Basin Plan implements State Water Resources Control Board (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. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Big Creek are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point No.	Receiving Water Name	Beneficial Use(s)
001	Big Creek	Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Hydropower generation (POW); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Wildlife habitat (WILD)

Requirements of this Order specifically implement the Basin Plan.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on 22 December 1992 and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA 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 water quality criteria for priority pollutants.

J. 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 USEPA 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 USEPA 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.

K. Compliance Schedules and Interim Requirements. In general, a NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a Total Maximum Daily Load (TMDL). All compliance schedules must be as short as possible, and may not exceed ten years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. The Central Valley Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to CWC section 13300 or a Cease and Desist Order pursuant to CWC section 13301 where it finds that the Discharger is violating or threatening to violate the permit. The Central Valley Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limitations based on the objective or criteria.

The Compliance Schedule Policy and the SIP do not allow compliance schedules for priority pollutants beyond 18 May 2010, except for new or more stringent priority pollutant criteria adopted by USEPA after 17 December 2008.

Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. This Order does include compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitations is included in the Fact Sheet.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR 131.21 and 65 FR 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order only contains WQBELs for individual pollutants. The WQBELs consist of restrictions on 5-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), BOD₅ and TSS percent removal, pH, settleable solids, phosphorus, total coliform organisms, ammonia (as N), nitrite plus nitrate (as N), aluminum, copper, lead, zinc, acute whole effluent

toxicity, and flow. This Order includes new effluent limitations for chronic whole effluent toxicity, ammonia (as N), nitrite plus nitrate (as N), aluminum, copper, lead, and zinc to meet numeric objectives or protect beneficial uses.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA 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 USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standard[s] for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

- N. Antidegradation Policy.** 40 CFR 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 No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters 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. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and Resolution No. 68-16.
- O. Anti-Backsliding Requirements.** Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R5-2005-0156.
- P. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, 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.

- Q. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC 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.
- R. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.
- S. Provisions and Requirements Implementing State Law.** The provisions/requirements in portions of section VI.C of this Order 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.
- T. Notification of Interested Parties.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.
- U. 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 No. R5-2005-0156 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 CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater at a location or in a manner different from that described in the Findings 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 condition of pollution or nuisance as defined in section 13050 of the CWC.
- D. The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system’s capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
- E. Discharge of waste classified as ‘hazardous’ as defined in Title 23, California Code of Regulations (CCR), Section 2521(a), et seq., or ‘designated’, as defined in Section 13173 of the CWC, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

- a. The effluent limitations in Table 6:

Table 6. Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	30	--	--
	lbs/day	1.9	2.9	5.8	--	--
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day	1.9	2.9	5.8	--	--
Total Coliform Organisms	MPN/100 mL	--	--	--	--	240
pH	standard units	--	--	--	6.5	8.5
Copper, Total Recoverable	µg/L	0.55	--	1.0	--	--
Lead, Total Recoverable	µg/L	0.053	--	0.11	--	--
Zinc, Total Recoverable	µg/L	6.4	--	11	--	--
Aluminum, Total Recoverable	µg/L	55	--	160	--	--
Ammonia Nitrogen, Total (as N)	mg/L	0.70	--	2.1	--	--
Nitrite Plus Nitrate (as N)	mg/L	10.	--	--	--	--
Phosphorus	mg/L	0.5	--	1.5	--	--
	lbs/day	0.1	--	0.3	--	--
Settleable Solids	mL/L	0.1	--	0.2	--	--

- b. Percent Removal.** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 90 percent.
- c. Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. Minimum for any one bioassay ----- 70%
 - ii. Median for any three consecutive bioassays ----- 90%
- d. Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:
 - i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median; and
 - ii. 23 MPN/100 mL, more than once in any 30-day period.
- e. Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 0.023 million gallons per day.
- f. Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

2. Interim Effluent Limitations

- a. Beginning on the effective date of this Order and ending on the dates specified in Provisions VI.C.7.a. and VI.C.7.b., the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at monitoring location EFF-001 as described in the Monitoring and Reporting Program. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters in Section IV.A.1.a., Table 6.

Table 7. Interim Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum, Total Recoverable	µg/L	220	--	220	--	--
Ammonia Nitrogen, Total (as N)	mg/L	3.2	--	3.2	--	--

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Big Creek:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
 - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **Pesticides:**
 - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
 - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by 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 (MCLs) set forth in Title 22, CCR, 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 MCLs specified in Title 22, CCR, Table 64442 of Section 64442 and Table 64443 of Section 64443.

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 Material. 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 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

- 1. Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not cause the following in underlying groundwater:
 - a. Constituent concentrations to exceed natural background quality.
 - b. Taste- or odor-producing constituents, toxic substances, or any other constituents to be present in concentrations that cause nuisance or adversely affect beneficial uses.

VI. PROVISIONS

A. Standard Provisions

- 1. The Discharger shall comply with all Standard Provisions (federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.
- 2. The Discharger shall comply with the following provisions:
 - 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:

- *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.
- *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.
- *Change in sludge use or disposal practice.* Under 40 CFR 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.** 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.
- h.** 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 Facility 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.
- i.** 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 Central Valley Water Board Standard Provision contained in section VI.A.2.h. 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.

- j. A Discharger 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. 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.
- k. 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.
- l. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13268, 13350, 13385, 13386, and 13387.
- m. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, instantaneous minimum effluent limitation, instantaneous maximum effluent limitation, maximum daily effluent limitation, acute toxicity effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone at (559) 445-5116 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Central Valley

Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D, section V.E.1. [40 CFR 122.41(l)(6)(i)].

- n. 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.
- 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 person or 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 CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR 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 testing, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity effluent limitation, new acute toxicity effluent limitations, and/or effluent limitations 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.
- d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria and effluent limitations for applicable priority pollutant inorganic constituents and aluminum. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper, lead, and zinc. 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.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, 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 exhibits toxicity, as described in subsection ii below, the Discharger is required to initiate a TRE in accordance with an approved TRE work plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of 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 work plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.
 - i. **TRE Work Plan.** By **<90 days of the effective date of this Order>**, the Discharger shall submit to the Central Valley Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the

procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with USEPA guidance¹ and be of adequate detail to allow the Discharger to immediately initiate a TRE as required by this Provision.

- ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.
- iii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is $> 1 TU_C$ (where $TU_C = 100/NOEC$)(NOEC = No Observed Effect Concentration). 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 when the effluent exhibits toxicity.
- iv. **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 (4) chronic toxicity tests in a six-week period (i.e., one test 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 (4) 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 evidence 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 (4) 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 to investigate the cause(s) of and identify corrective actions to reduce or eliminate effluent toxicity. Within **thirty (30) days** of notification by the

¹ See the Fact Sheet (Attachment F, section VII.B.2.a.) for a list of USEPA guidance documents that must be considered in development of the TRE Work Plan.

laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action 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.

3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall review and revise the salinity evaluation and minimization plan submitted with the ROWD and shall submit the revised plan by **<9 months following Order adoption>** for approval by the Executive Officer. The revised plan shall address the following:
 - i. Provide clarification on where the source water EC data provided in the ROWD was collected – prior to or after treatment at the drinking water treatment plant.
 - ii. Identify all possible sources of salinity to and from the Facility, including any chemicals used for drinking water and wastewater treatment, and describe how the Discharger intends to address and minimize each source.
 - iii. Conduct a study to identify the sources of the significant phosphorus increase in the influent to the Facility that began in 2008. To the extent the source is found, the study shall identify measures to reduce the source and include an implementation schedule.

The Discharger shall submit semi-annual progress reports evaluating the effectiveness of the plan in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1).

4. Construction, Operation, and Maintenance Specifications

- a. Public contact with wastewater, sludge/biosolids, and other wastes at the Facility shall be precluded through such means as fences and signs, or other acceptable alternatives.
- b. Objectionable odors originating from the Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
- c. **Turbidity Operational Requirements.** The Discharger shall operate the treatment system to ensure that turbidity at TTF-001, as described in the MRP (Attachment E), shall not exceed:

- i. 0.2 NTU, more than 5 percent of the time within a 24-hour period; and
 - ii. 0.5 NTU, at any time.
- d. Ultraviolet (UV) Light Disinfection System Operating Specifications.** The Discharger shall operate the UV disinfection system to provide a minimum UV dose per channel of 80 millijoules per square centimeter (mJ/cm^2) at peak daily flow, unless otherwise approved by the Department of Public Health (DPH), and shall maintain an adequate dose for disinfection while discharging to Big Creek, unless otherwise approved by DPH.
- i. The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, UV power, and turbidity.
 - ii. The Discharger shall operate the treatment system to ensure that turbidity prior to disinfection meets the Turbidity Operational Requirements specified in Section VI.C.4.c. of this Order.
 - iii. The UV transmittance (at 254 nanometers) in the wastewater exiting the UV disinfection system shall not fall below 65 percent of maximum at any time, unless otherwise approved by DPH.
 - iv. The quartz 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.
 - v. The lamp sleeves must be cleaned periodically, as necessary, to meet the requirements.
 - vi. 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.
 - vii. The Facility must be operated in accordance with an operations and maintenance program that assures adequate disinfection.
- e. Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the Facility. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 CFR 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 the State Water Board or a Regional Water Board will satisfy these specifications.

- ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.
- iii. The treatment of sludge and the dewatering of residual sludge and/or biosolids 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.
- iv. 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 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR 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 CFR Part 503 whether or not they have been incorporated into this Order.
- v. The Discharger shall comply with Section IX.A. of the Monitoring and Reporting Program, Attachment E.
- vi. Any proposed change in sludge/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.
- vii. By **<180 days of the permit effective date>**, the Discharger shall review and update its existing sludge/biosolids use or disposal plan, and submit it to the Central Valley Water Board. The updated plan shall describe at a minimum:
 - (a) Sources and amounts of sludge/biosolids generated annually.
 - (b) Location(s) of onsite storage and description of the containment area.
 - (c) Plans for ultimate disposal. For landfill disposal, include the Regional Water Board's waste discharge requirement numbers that regulate the

particular landfill; the present classification of the landfill; and the name and location of the landfill.

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. Compliance Schedule for Final Effluent Limitations for Aluminum. This Order requires compliance with the final effluent limitations for aluminum by the date specified below. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations:

<u>Task</u>	<u>Date Due</u>
i. Full compliance with the final effluent limitations for aluminum	<60 days following Order effective date>

b. Compliance Schedule for Final Effluent Limitations for Ammonia (as N). This Order requires compliance with the final effluent limitations for ammonia (as N) by the date specified below. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations:

<u>Task</u>	<u>Date Due</u>
i. Progress Report ¹	<4 months after Order effective date>
ii. Full compliance with the final effluent limitations for ammonia (as N)	<8 months after Order effective date>

¹ The progress report shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.

VII. COMPLIANCE DETERMINATION

A. BOD₅ and TSS Effluent Limitations (Sections IV.A.1.a. and IV.A.1.b.). Compliance with the final effluent limitations for BOD₅ and TSS required in 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.b. for percent removal shall be calculated using the arithmetic mean of BOD₅ and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Aluminum Effluent Limitations (Section IV.A.1.a.). 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.

- C. Average Dry Weather Flow Effluent Limitation (Section IV.A.1.e.).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitation will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).
- D. Total Coliform Organisms Effluent Limitations (Sections IV.A.1.a. and IV.A.1.d.).** 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:
- $$\text{Mass (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34 \text{ (conversion factor)}$$
- If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in 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 using sample reporting protocols defined in Attachment A and Attachment E of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitations and greater than or equal to the reporting level (RL).
- G. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.f.).** Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

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

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

Average Monthly Effluent Limitation (AMEL)

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

Average Weekly Effluent Limitation (AWEL)

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

Best Practicable Treatment or Control (BPTC)

BPTC is a requirement of State Water Resources Control Board Resolution No. 68-16 – “Statement of Policy with Respect to Maintaining High Quality of Waters in California” (referred to as the “Antidegradation Policy”). BPTC is the treatment or control of a 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.” Pollution is defined in CWC section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes “pollution”.

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

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 1 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 reporting limit (RL), but greater than or equal to the laboratory's method detection limit (MDL).

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 USEPA 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 but above the MDL.

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 include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in CWC 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).

LC50

The concentration of effluent that is lethal to 50% of the exposed test organisms, measured in a dilution series ranging from 100% effluent to 0% effluent.

Lowest Observed Effect Concentration (LOEC)

The lowest concentration of an effluent at which adverse effects are observed on an aquatic test organism.

Maximum Daily Effluent Limitation (MDEL)

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

Median

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

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Appendix B.

Minimum Level (ML)

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

Mixing Zone

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

No Observed Effect Concentration (NOEC)

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

Not Detected (ND)

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

Ocean Waters

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

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 CWC 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 CWC 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 Board or Central Valley Water Board.

Reporting Level (RL)

RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order

correspond to approved analytical methods for reporting a sample result that are selected by the Central Valley Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water

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

Standard Deviation (σ)

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

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

where:

x is the observed value;

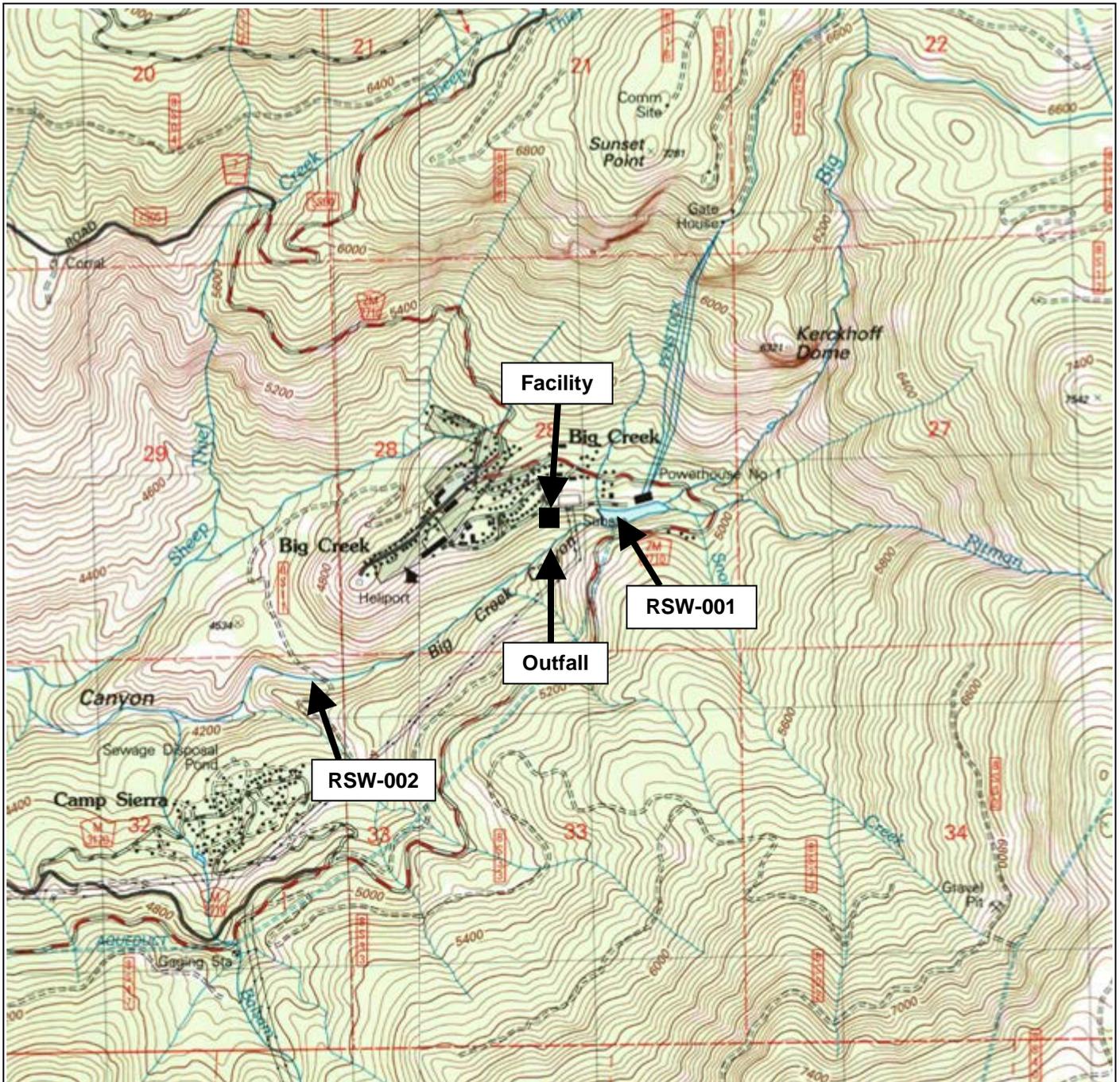
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE)

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

ATTACHMENT B – MAP



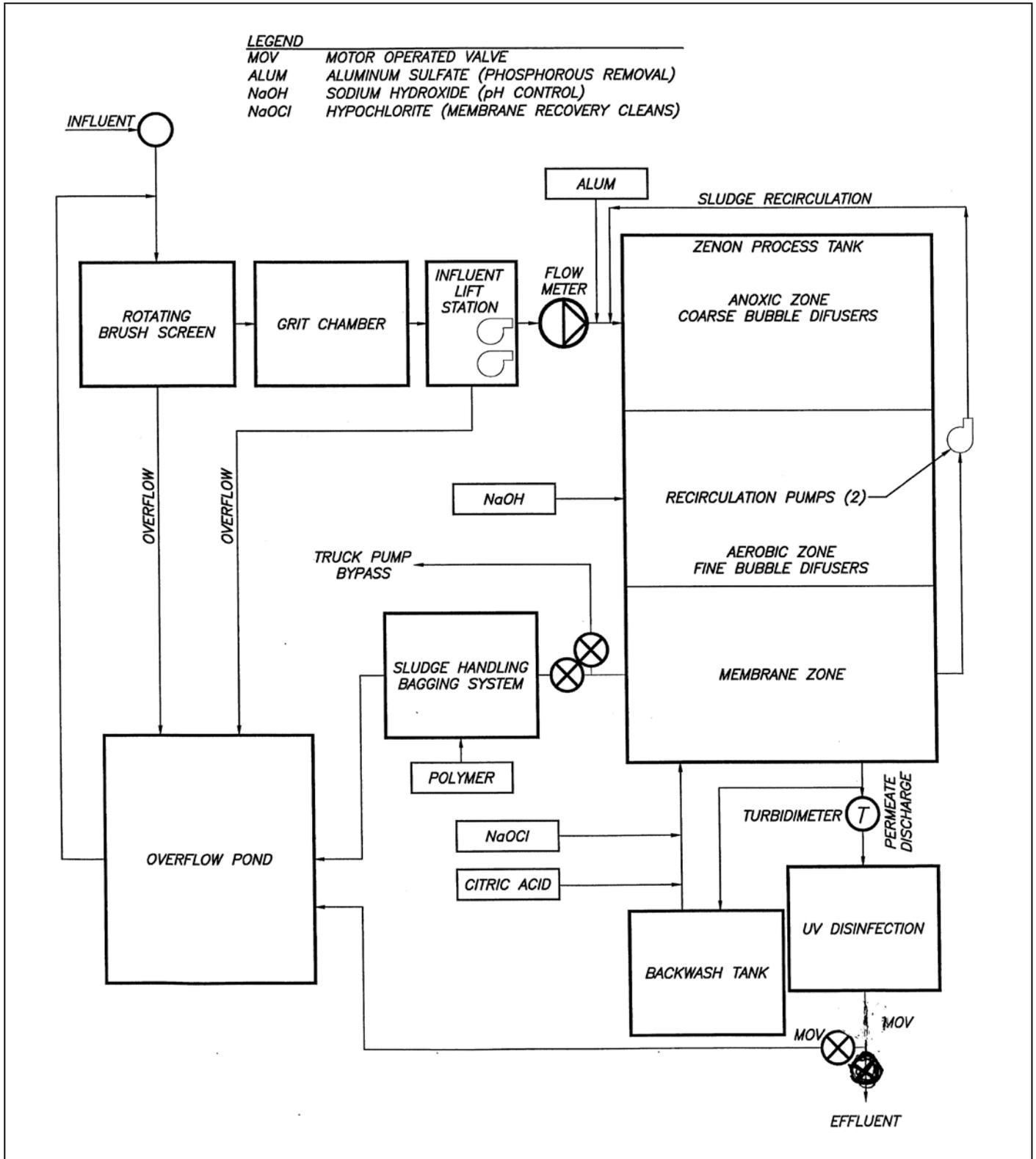
Drawing Reference:
 HUNTINGTON LAKE AND
 MUSICK MOUNTAIN
 U.S.G.S. TOPOGRAPHIC MAPS
 7.5 MINUTE QUADRANGLES
 Revised 2004

SITE LOCATION MAP

 SOUTHERN CALIFORNIA EDISON COMPANY
 BIG CREEK POWERHOUSE NO. 1
 DOMESTIC WWTP
 FRESNO COUNTY

NOT TO SCALE

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)
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 CFR 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 CFR 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 CFR 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 CFR 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR 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 CFR 122.5(c))

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, United States Environmental Protection Agency (USEPA), 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 (40 CFR 122.41(i); CWC section 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 (40 CFR 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR 122.41(i)(4))

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 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 CFR 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 CFR 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 CFR 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 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 CFR 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 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 CFR 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 CFR 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 CFR 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 CFR 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 CFR 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 CFR 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 CFR 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 CFR 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR 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 CFR 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 CFR 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 CFR 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 CWC. (40 CFR 122.41(l)(3) and 122.61)

III. STANDARD PROVISIONS – MONITORING

- A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1))
- B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv))

IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR 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 CFR 122.41(j)(2))

B. Records of monitoring information shall include:

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

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

1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 CFR 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 USEPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or USEPA 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 USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); CWC section 13267)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or USEPA 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 CFR 122.41(k))
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
(40 CFR 122.22(a)(1))
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or USEPA 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 CFR 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 CFR 122.22(b)(2)); and

- c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 CFR 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 CFR 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 CFR 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 CFR 122.22(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 CFR 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 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this 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 CFR 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 CFR 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 CFR 122.41(l)(5))

E. Twenty-Four Hour Reporting

1. The Discharger shall notify the California Emergency Management Agency (formerly the Office of Emergency Services) of any noncompliance that may endanger health or the environment within two (2) hours from the time the Discharger becomes aware of the circumstances. The Discharger shall notify the Central Valley Water Board of the noncompliance by telephone or fax within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided to the Central Valley Water Board 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 CFR 122.41(l)(6)(i))
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A))
 - b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 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 CFR 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 CFR 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 40 CFR 122.29(b) (40 CFR 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 subject neither to effluent limitations in this Order nor to notification requirements

under 40 CFR 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 CFR 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 CFR 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 Order requirements. (40 CFR 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 CFR 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 USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 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 CWC, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Central Valley Water Board as soon as they know or have reason to believe (40 CFR 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(1)):

- a. 100 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(1)(i));
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(1)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with 40 CFR 122.44(f). (40 CFR 122.42(a)(1)(iv))
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR 122.42(a)(2)):
- a. 500 micrograms per liter ($\mu\text{g/L}$) (40 CFR 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 CFR 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR 122.42(a)(2)(iii)); or
 - d. The level established by the Central Valley Water Board in accordance with section 122.44(f). (40 CFR 122.42(a)(2)(iv))

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the 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 California Department of Public Health (DPH). 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, 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, dissolved oxygen, turbidity, and temperature must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff, State Water Board staff, USEPA staff, and/or their authorized representatives. 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 by DPH, in accordance with the provision of CWC section 13176, and must include quality assurance/quality control data with their reports.
- G. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- 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.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the facility can be collected prior to any plant return flows or treatment processes.
001	EFF-001	A representative sample downstream from the last connection through which wastes can be discharged after all treatment processes and prior to commingling with other waste streams or being discharged into Big Creek.
--	RSW-001	Big Creek, in the reservoir formed by Big Creek Dam No. 4 at a location that provides samples representative of the water in Big Creek just prior to the point of discharge (i.e., Discharge Point No. 001).
--	RSW-002	Big Creek, approximately 0.5 miles downstream from the point of discharge.
--	BIO-001	A representative sample of the biosolids generated when removed for disposal.
--	TTF-001	A representative sample of the filtered effluent prior to the UV disinfection system.
--	SPL-001	A representative sample of the community of Big Creek's water supply.
--	UVS-001	UV light disinfection system.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	Standard Units	Grab ²	1/Week	1
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite ³	1/Week	1
	lbs/day	Calculate ⁴		
Total Suspended Solids	mg/L	24-hr Composite ³	1/Week	1
	lbs/day	Calculate ⁴		
Electrical Conductivity @ 25°C	µmhos/cm	24-hr Composite ³	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 Grab samples shall not be collected at the same time each day to get a complete representation of variations in the influent.

³ 24-hour flow proportional composite.

⁴ Effluent flow may be used to determine influent BOD₅ and TSS mass loadings.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated effluent from the Facility at Monitoring Location EFF-001 as specified in Table E-3 below. 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 ¹⁶	mgd	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite ²	1/Week	1
	lbs/day	Calculate	1/Week	--
	% removal	Calculate	1/Month	--
Total Suspended Solids	mg/L	24-hr Composite ²	1/Week	1
	lbs/day	Calculate	1/Week	--
	% removal	Calculate	1/Month	--
Total Coliform Organisms	MPN/100 mL	Grab	3/Week ^{10,13}	1
pH	Standard Units	Grab	3/Week ^{3,13}	1,4
Priority Pollutants				
Copper, Total Recoverable	µg/L	Grab	1/Month	1,5
Lead, Total Recoverable	µg/L	Grab	1/Month	1,5
Silver, Total Recoverable	µg/L	Grab	1/Month	1,5
Zinc, Total Recoverable	µg/L	Grab	1/Month	1,5
Priority Pollutants	vary	24-hr Composite ^{2,11,12}	1/Permit Term ⁶	1,5
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	Grab	1/Month	1,7

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Ammonia Nitrogen, Total (as N)	mg/L	Grab	2/Month ³	1
Electrical Conductivity @ 25°C	µmhos/cm	Grab	3/Week	1
General Minerals ¹⁴	mg/L	Grab	1/Year	1
Hardness (as CaCO ₃)	mg/L	Grab	1/Month ⁸	1
Nitrite Plus Nitrate (as N)	mg/L	Grab	1/Month ⁹	1
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Month ^{9, 15}	1
Phosphorus, Total	mg/L	Grab	2/Month	1
Settleable Solids	ml/L	Grab	1/Week	1
Temperature	°C/°F	Grab	3/Week ³	1,4
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 time-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 For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML.
- ⁶ Priority pollutants shall be sampled during the third year following the date of permit adoption and shall be conducted concurrently with effluent hardness and pH monitoring and upstream receiving water monitoring for priority pollutants, hardness (as CaCO₃), and pH. Following the initial sampling event, detected priority pollutants shall be sampled quarterly for three consecutive quarters.
- ⁷ 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.
- ⁸ Hardness samples shall be collected concurrently with metals samples.
- ⁹ Monitoring for nitrite (as N) and nitrite plus nitrate (as N) shall be conducted concurrently.
- ¹⁰ Samples for total coliform organisms may be collected at any point following disinfection but prior to discharge.
- ¹¹ Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
- ¹² 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.
- ¹³ Samples shall be collected on non-consecutive days.
- ¹⁴ General minerals shall include the following: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and include verification that the analysis is complete (i.e., cation/anion balance).
- ¹⁵ After 36 consecutive months of monitoring, the Discharger may request to cease monitoring subject to approval from the Executive Officer.
- ¹⁶ Until the effluent flow meter is installed, effluent flows may be determined using the flow meter located prior to the membrane bioreactor.

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 **annual (1/year)** acute toxicity testing.
2. Sample Types – 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 the effluent monitoring location EFF-001.
3. Test Species – Test species shall be rainbow trout (*Oncorhynchus mykiss*).
4. Test Type and Duration – Test type shall be static renewal, and the test duration shall be 96 hours.
5. Dilutions – The acute toxicity testing shall be performed using undiluted effluent.
6. Test Methods – The acute toxicity testing samples shall be analyzed using *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. 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.
7. 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 **annual (1/year)** three species chronic toxicity testing.
2. Sample Types – Effluent samples shall be time-proportional 24-hour composite samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, 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:

- The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - The green alga, *Selenastrum capricornutum* (growth test).
5. Test Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002* (Method Manual).
 6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
 7. Dilutions – For regular 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 two controls. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

8. Test Failure – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
 - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the 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 Special Provision VI.C.2.a.iii. of this 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 **within 30 days** following completion of the test, and shall contain, at minimum:
 - a. The dates of sample collection and initiation of each toxicity test; and
 - b. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger 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 TRE.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted **within 30 days** following completion of the test and reported as percent survival.
3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
 - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
 - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
 - c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Big Creek at RSW-001 and RSW-002 as specified in Table E-5 below:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Quarter	1,7
pH	standard units	Grab	1/Quarter ³	1,7
Temperature	°F	Grab	1/Quarter ³	1,7
Turbidity	NTU	Grab	1/Quarter	1,7
Aluminum, Total Recoverable	µg/L	Grab	1/Quarter	1,2
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Quarter ³	1
Nitrite Plus Nitrate (as N)	mg/L	Grab	1/Quarter	1
Copper, Total Recoverable	µg/L	Grab	1/Quarter	1,4
Lead, Total Recoverable	µg/L	Grab	1/Quarter	1,4
Silver, Total Recoverable	µg/L	Grab	1/Quarter	1,4
Zinc, Total Recoverable	µg/L	Grab	1/Quarter	1,4
Priority Pollutants	vary	Grab ⁸	1/Permit Term ⁵	1,4
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	1
Total Coliform Organisms	MPN/100 mL	Grab	1/Quarter	1
Hardness (as CaCO ₃)	mg/L	Grab	1/Month ⁶	1
General Minerals ⁹	mg/L	Grab	1/Year	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 Analysis for aluminum may be performed 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.

³ Temperature and pH shall be determined at the time the sample is taken for ammonia analysis.

⁴ For priority pollutant constituents, detection limits shall be the lowest minimum level (ML) published in Appendix 4 of the SIP.

⁵ Sampling of priority pollutants shall occur once during the third year of the permit at Monitoring Location RSW-001 only. Following the initial sampling event, detected priority pollutants shall be sampled quarterly at RSW-001 for three consecutive quarters.

⁶ Hardness samples shall be collected concurrently with metals samples and shall be collected at RSW-001 only.

⁷ 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.

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 contaminant.

⁹ General minerals shall include the following: boron, calcium, chloride, iron, magnesium, manganese, phosphorus, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and include verification that the analysis is complete (i.e., cation/anion balance).

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions at 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
 - g. Potential nuisance conditions

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

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 USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the metals listed in Title 22.
- b. 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.

B. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the community of Big Creek's water supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the water supply can be obtained.

Table E-6. Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Month	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.

C. Tertiary Treatment Filters

1. Monitoring Location TTF-001

The Discharger shall monitor the tertiary treatment filter system at TTF-001 as specified in Table E-7 below:

Table E-7. Tertiary Treatment Filters Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Turbidity	NTU	Meter ²	Continuous ^{1, 3}	⁴

- 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.
- ² The turbidity meter shall be stationed at a location representative of the filtered effluent, prior to the UV disinfection process.
- ³ If turbidity exceeds 0.5 NTU, the Discharger shall collect a sample for total coliform organisms at EFF-001 as soon as practicable and report the duration of the turbidity exceedance.
- ⁴ 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.

D. Ultraviolet Light (UV) Disinfection System

1. Monitoring Location UVS-001

The Discharger shall monitor the UV disinfection system at UVS-001 as specified in Table E-8 below:

Table E-8. Ultraviolet Light Disinfection System Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	mgd	Meter	Continuous ¹
Number of UV banks in operation	Number	Meter	Continuous ¹
UV Transmittance	Percent (%)	Meter	Continuous ¹
UV Power Setting	Percent (%)	Meter	Continuous ¹
UV Dose ²	³	Calculated	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.
- ² Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. For the daily minimum UV dose, also report associated number of banks, gallons per minute per lamp, and UV transmittance used in the calculation. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to Big Creek, report the duration and dose calculation variables associated with each incident.
- ³ UV dosage shall be reported in units of millijoules per square centimeter (mJ/cm²)

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 from 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 continue to submit electronic SMRs (eSMRs) using the State Water Board’s California Integrated Water Quality System (CIWQS) Program Web site (<http://ciwqs.waterboards.ca.gov/>). The Discharger shall maintain sufficient staffing and resources to ensure it submits eSMRs during the effective duration of this Order. This includes provision of training and supervision of individuals (e.g., Discharger personnel or consultant) on how to prepare and submit eSMRs. The CIWQS web site will provide additional directions for eSMR submittal in the event there will be service interruption.
2. With the exception of flow, all constituents monitored on a continuous basis (metered) shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.
3. 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 SMRs.
4. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	All	Submit with monthly SMR
1/Day	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling	Submit with monthly SMR
1/Week 3/Week	First Sunday of the calendar month following the permit effective date or on the permit effective date if that date is the first Sunday of the month	Sunday through Saturday	Submit with monthly SMR

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
1/Month	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	First day of calendar month through last day of calendar month	First day of the second month following month of sampling
2/Month	First day of the calendar month following the permit effective date or on the permit effective date if that date is the first day of the month	First day of calendar month through last day of calendar month	Submit with monthly SMR
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
1/Year	1 January following (or on) permit effective date	1 January through 31 December	Submit with the monthly SMR in which sample was taken (e.g., if a sample is taken in March, the result must be included in the March SMR [due 1 May])
1/Year (Acute Toxicity)	1 January following (or on) permit effective date	1 January through 31 December	Submit results within 30 days following completion of test
1/Year (Chronic Toxicity)	1 January following (or on) permit effective date	1 January through 31 December	Submit results within 30 days following completion of test
1/Year (Annual Report)	1 January following (or on) permit effective date	1 January through 31 December	1 February of the following year
1/Permit Term	<third year of the permit term>	<third year of the permit term>. Quarterly thereafter for detected parameters.	Submit with the monthly SMR in which sample was taken (e.g., if a sample is taken in March, the result must be included in the March SMR [due 1 May])

5. Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML)/Reporting Limit (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR 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 reported ML/RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the ML/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 as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML/RL 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.
- 6. Multiple Sample Data.** When determining compliance with an AMEL 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.
- 7.** The Discharger shall attach laboratory analysis sheets, including quality assurance/quality control information, with all its SMRs for which sample analyses were performed. The Discharger shall submit eSMRs in accordance with the following requirements:

- a. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When 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 under the Attachments tab.
 - b. The Discharger shall attach a cover letter to the eSMR. The information contained in the cover letter shall clearly identify violations of the WDRs; 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. SMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), through the CIWQS web site.
8. Reports must clearly show when discharging to EFF-001. Reports must show the date that the discharge started and stopped.
9. **Calculation Requirements.** The following shall be calculated and reported in the eSMRs:

- a. **Mass Loading Limitations.** For BOD₅, TSS, and phosphorus, the Discharger shall calculate and report the mass loading (lbs/day) in the eSMRs. The mass loading shall be calculated as follows:

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

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

- b. **Removal Efficiency (BOD₅ and TSS).** The Discharger shall calculate and report the percent removal of BOD₅ and TSS in the eSMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.
- c. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in Section VII.D. of the Limitations and Discharge Requirements.
- d. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall calculate and report the following quarterly: i) the dissolved oxygen concentration of the receiving water, ii) the percent of saturation in the main water mass of the receiving water, and iii) the 95th percentile dissolved oxygen concentration of the receiving water.

- e. **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.
- f. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at RSW-001 and RSW-002.

C. Discharge Monitoring Reports (DMRs) – Not Applicable

D. Other Reports

- 1. **Special Study Reports and Progress Reports.** As specified in Provision VI.C.3.a of this Order, 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 its salinity evaluation and minimization implementation efforts.

Table E-10. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirement
Salinity Evaluation and Minimization Plan (VI.C.3.a.)	1 August and 1 February , semi-annually

- 2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, and TRE/TIE required by Special Provision VI.C.2 of this Order. The Discharger shall report the progress in satisfaction of the compliance schedule dates specified in the Provisions VI.C.7.a. and VI.C.7.b. of this Order.
- 3. The Discharger’s sanitary sewer system collects wastewater using sewers, pipes, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A “sanitary sewer overflow” is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.
- 4. **Annual Operations Report.** By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
 - a. The names, certificate grades (if applicable), and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the Facility 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 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 the Findings in section II 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	5C102009001
Discharger	Southern California Edison Company
Name of Facility	Big Creek Powerhouse No. 1 Domestic Wastewater Treatment Plant
Facility Address	Spruce Avenue
	Big Creek, CA 93605
	Fresno County
Facility Contact, Title and Phone	Tod Cameron Gibson, Facility Manager (559) 893-2030
Authorized Person to Sign and Submit Reports	David Dormire, Northern Hydro Division Manager (559) 893-2077
Mailing Address	P.O. Box 100, Big Creek, CA 93605
Billing Address	P.O. Box 100, Big Creek, CA 93605
Type of Facility	Domestic Wastewater Treatment Plant
Major or Minor Facility	Minor
Threat to Water Quality	2
Complexity	B
Pretreatment Program	N
Reclamation Requirements	NA
Facility Permitted Flow	0.023 million gallons per day (mgd)
Facility Design Flow	0.06 mgd
Watershed	Lakeshore Hydrologic Area (540.51)
Receiving Water	Big Creek
Receiving Water Type	Inland surface water

A. The Southern California Edison Company (hereinafter Discharger) is the owner and operator of Big Creek Powerhouse No. 1 Domestic Wastewater Treatment Plant (hereinafter Facility), a privately-owned wastewater treatment plant (WWTP).

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

- B.** The Facility discharges wastewater to Big Creek, a water of the United States, and is currently regulated by Order No. R5-2005-0156 which was adopted on 21 October 2005 and expired on 21 October 2010. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.
- C.** The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for renewal of its WDRs and NPDES permit on 23 April 2010.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the community of Big Creek and serves a population of approximately 180. The design daily average flow capacity of the Facility is 0.06 million gallons per day (mgd).

A. Description of Wastewater and Biosolids Treatment or Controls

In 2007, the Discharger purchased new headworks equipment, a membrane bioreactor wastewater treatment system, sludge bagging system, a new ultraviolet (UV) light disinfection system, and magnetic flow meters to replace the older WWTP. The original plant was constructed in 1961. Inflow and infiltration were overloading the WWTP and a replacement of the collection system occurred in 1996 and 2001. The new wastewater treatment system commenced operation in December 2007.

The treatment system at the Facility consists of primary, secondary, and tertiary units. Primary treatment includes a rotating brush screen which is designed to remove paper and other solid wastes from the influent. Then the wastewater flows into the grit chamber. The wastewater flows through the flow meter and into the secondary treatment units – an anoxic zone and an aerobic zone. The Discharger adds alum and caustic soda to the secondary treatment units to remove phosphorus, enhance flocculation, and control pH. As water leaves the aerobic zone it enters the membrane filters, which provide ultrafiltration. After tertiary treatment, a small fraction of wastewater is directed to the permeate back flush tank while the remainder of the wastewater is disinfected using UV light. A concrete-lined overflow pond is adjacent to the Facility for storage of flow in the event of a treatment system failure or major maintenance. Sludge is processed using a sludge bagging and dewatering system.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 28, T8S, R25E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated domestic wastewater is discharged at Discharge Point No. 001 to Big Creek at a point latitude 37° 12' 08" N and longitude 119° 14' 38" W. Big Creek is a water of the United States and a tributary to San Joaquin River.

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

Effluent limitations contained in Order No. R5-2005-0156 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the upgraded WWTP are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitations			Monitoring Data (From December 2007 To July 2010)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	10	15	30	39	39	39
Total Suspended Solids	mg/L	10	15	30	9	9	9
Total Coliform Organism	MPN/100 mL	2.2 median	--	23	9 (median value)	--	900
Settleable Solids	mL/L	0.1	--	0.2	0.1	--	0.1
Total Phosphorus	mg/L	0.5	--	1.5	0.6	--	1.2
pH	standard units	--	--	6.0-9.0 (range)	--	--	6.3-8.1 (range)

D. Compliance Summary

The Discharger received Administrative Civil Liability (ACL) Complaint R5-2008-0594, which identified violations of WDRs Order Nos. 95-236 and R5-2005-0156. The ACL Record of Violations covered the period of 1 January 2000 through 31 December 2007 and identified exceedances of numerical limitations for monthly average discharge flow and for effluent pH, settleable solids, total suspended solids, and total coliform organisms. These violations occurred prior to the facility upgrades in December 2007 (as discussed in Section II.A. of this Fact Sheet). Effluent data from December 2007 through July 2010 show that the discharge exceeded effluent limitations for BOD one time, phosphorus one time, and total coliform three times. The Discharger’s July 2008 SMR indicates that the total coliform exceedances were due to contamination of the effluent sample line caused by a ruptured sludge bag.

E. Planned Changes

The Discharger is planning to continue to segregate storm drains from the separate sanitary sewer system.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

A. Legal Authorities

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (CWC) as specified in the Finding contained at section II.C of this Order.

B. California Environmental Quality Act (CEQA)

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plan.** This Order implements the following water quality control plan as specified in the Finding contained at section II.H of this Order.
 - a. *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan).
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.
3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.
4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.
5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution No. 68-16.
6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).

7. **Storm Water Requirements.** The Discharger is not required to obtain coverage under a NPDES general industrial storm water permit because all runoff is contained onsite. The Discharger has submitted a letter of nonapplicability.
8. **Endangered Species Act.** This Order is consistent with the Endangered Species Act as specified in the Finding contained at section II.P of this Order.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. 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 CFR Part 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal requirements 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.*" Big Creek is not listed as a WQLS in the 2008-2010 303(d) List of WQLSs.
2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. No TMDLs are scheduled for Big Creek.

E. Other Plans, Policies and Regulations – Not Applicable

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C. §1311(b)(1)(C); 40 CFR 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 CFR 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 CFR 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 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-16.00, 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 CFR 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 CFR 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-8.01) 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 the 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 is based on CWC Section 13260 that requires filing of a report of waste discharge (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 prohibits bypass pursuant to 40 CFR 122.41(m)(4), with federal allowance for exceptions set forth in Section I.G. of Attachment D, Federal Standard Provisions. It also prohibits overflows, which concerns release of untreated and partially treated wastewater to surface waters.
3. Prohibition III.C is based on CWC Section 13050, which requires water quality objectives be established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create pollution or a nuisance. Prohibition III.C also reflects general situations that, if created, justify cleanup or abatement enforcement activities and assessment of administrative civil liabilities.
4. Prohibition III.D is based on 40 CFR 122.41 et seq., which requires the proper design and operation of treatment facilities.
5. Prohibition III.E concerns two categories of waste that are subject to full containment as prescribed by Title 23 and Title 27 of the CCR and, if discharged, have high potential for creating a condition that would violate Prohibition III.C as well.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR 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 Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3.

CWA section 402(a)(1) and 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

There are no applicable technology-based effluent limitations for this discharge.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

quality standards. The rationale for these requirements, which consist of tertiary treatment, is discussed in section IV.C.3.d. of this Fact Sheet.

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

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

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 provides 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 be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 CFR 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 CFR 131.10,

requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

- a. **Receiving Water and Beneficial Uses.** The receiving water, Big Creek, is a water of the United States, and a tributary to San Joaquin River within the Lakeshore Hydrologic Area (540.51).

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 does not specifically identify beneficial uses for Big Creek, but does identify present and potential uses for the San Joaquin River from its sources to Millerton Lake, to which Big Creek is tributary. Thus, beneficial uses applicable to Big Creek are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point No.	Receiving Water Name	Beneficial Use(s)
001	Big Creek	Municipal and domestic supply (MUN); Agricultural supply (AGR); Hydropower generation (POW); Water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); and Wildlife habitat (WILD).

- 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 December 2007 through July 2010, with the exception of aluminum, copper, lead, and zinc which was based on data, including hardness data, from December 2007 through July 2011. The data used in the reasonable potential analysis includes effluent and ambient background data submitted in self-monitoring reports (SMRs), the ROWD, and priority pollutant monitoring required in Order No. R5-2005-0156.
- c. **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.
- d. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* and the *National Toxics Rule* 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 reasonable worst-case ambient hardness as required by the SIP¹, the CTR² and State Water Board Order WQ 2008-0008 (City of Davis). The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR 131.38(c)(4)) The CTR does not define whether the term “ambient,” as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQ 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10). Guidance on the selection of the appropriate ambient hardness was provided by the State Water Board in Order WQ 2008-0008 (City of Davis).

The State Water Board allows, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent. (Order WQ 2008-0008, p. 11.) Regional Water Boards have considerable discretion in determining ambient hardness as long as the hardness values are protective under all flow conditions. (*Id.*, pp. 10-11.)

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

- i. **Conducting the Reasonable Potential Analysis (RPA).** The SIP in Section 1.3 states, “*The RWQCB shall...determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.*” Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the Maximum Effluent Concentration (MEC) and Maximum Ambient Background Concentration to the applicable

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

² The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO₃), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(a) The SIP requires a WQBEL if the MEC exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the “fully mixed” reasonable worst-case downstream ambient hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case downstream ambient hardness was used to adjust the criterion. For this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii, below.

(b) The SIP requires a WQBEL if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the Maximum Ambient Background Concentration of a pollutant exceeds the applicable criterion, adjusted for hardness³. For comparing the Maximum Ambient Background Concentration to the applicable criterion, the reasonable worst-case upstream ambient hardness was used to adjust the criteria. This is appropriate because this area is outside the influence of the discharge. Since the discharge does not impact the upstream hardness, the effect of the effluent hardness was not included in this evaluation.

ii. **Calculating Water Quality-Based Effluent Limitations.** The remaining discussion in this section relates to the development of WQBELs when it has been determined that the discharge has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

A 2006 Study⁴ developed procedures for calculating the effluent concentration allowance (ECA)⁵ for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it

³ The pollutant must also be detected in the effluent.

⁴ Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

⁵ The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate water quality-based effluent limitations in accordance with Section 1.4 of the SIP.

captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR⁶, is as follows:

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

Where:

H = hardness (as CaCO₃)⁷
WER = water-effect ratio
m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants “m” and “b” are specific to both the metal under consideration and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \text{ (when } C \leq B\text{)}^8 \quad (\text{Equation 2})$$

Where:

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)
B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as “Concave Down Metals”. “Concave Down” refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar

⁶ 40 CFR 131.38(b)(2)

⁷ For this discussion, all hardness values are in mg/L as CaCO₃.

⁸ The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B).

procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as “Concave Up Metals”.

ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria.⁹ The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow).¹⁰ Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 6.1 mg/L to 59 mg/L. The upstream receiving water hardness varied from 2.8 mg/L to 16 mg/L, and the downstream receiving water hardness varied from 3.5 mg/L to 11 mg/L. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 6.1 mg/L. As demonstrated in the example shown in Table F-4a, below, using this hardness to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all flow conditions, from the effluent dominated condition to high flow condition. This example for copper assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 2.8 mg/L)
- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

Using these reasonable worst-case receiving water conditions, a simple mass balance (as shown in Equation 3, below) accounts for all possible mixtures of effluent and receiving water under all flow conditions.

$$C_{MIX} = C_{RW} \times (1-EF) + C_{Eff} \times (EF) \quad \text{(Equation 3)}$$

Where:

C_{MIX} = Mixed concentration (e.g., metals or hardness)

C_{RW} = Upstream receiving water concentration

⁹ 2006 Study, p. 5700

¹⁰ There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

C_{Eff} = Effluent concentration
 EF = Effluent Fraction

In this example, for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient copper concentration is in compliance with the CTR criteria.¹¹

Table F-4a. Copper ECA Evaluation

		Lowest Observed Effluent Hardness		6.1 mg/L	
		Lowest Observed Upstream Receiving Water Hardness		2.8 mg/L	
		Highest Assumed Upstream Receiving Water Copper Concentration		0.44 µg/L¹	
		Copper ECA_{chronic}²		0.85 µg/L	
		Fully Mixed Downstream Ambient Concentration			
Effluent Fraction⁶		Hardness³ (mg/L)	CTR Criteria⁴ (µg/L)	Copper⁵ (µg/L)	Complies with CTR Criteria
High Flow  Low Flow	1%	2.8	0.44	0.44	Yes
	5%	3.0	0.46	0.46	Yes
	15%	3.3	0.51	0.50	Yes
	25%	3.6	0.55	0.54	Yes
	50%	4.5	0.65	0.64	Yes
	75%	5.3	0.76	0.75	Yes
	100%	6.1	0.85	0.85	Yes

- ¹ Highest assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 2.8 mg/L.
- ² ECA calculated using Equation 1 for chronic criterion at a hardness of 6.1 mg/L.
- ³ Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.
- ⁴ Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
- ⁵ Fully mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction using Equation 3.
- ⁶ The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

ECA for Acute Cadmium, Lead, and Acute Silver – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life,

¹¹ This method considers the actual lowest upstream hardness and actual lowest effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-4a demonstrates that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case upstream receiving water hardness, the lowest observed effluent hardness, and assuming no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criteria). Equation 4 is not used in place of the CTR equation (Equation 1). Rather, Equation 4, which is derived using the CTR equation, is used as a direct approach for calculating the ECA. This replaces an iterative approach for calculating the ECA. The CTR equation has been used to evaluate the receiving water downstream of the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-4b).

$$ECA = \left(\frac{m(H_e - H_{rw})(e^{m(\ln(H_{rw})) + b})}{H_{rw}} \right) + e^{m(\ln(H_{rw})) + b} \quad (\text{Equation 4})$$

Where:

- m, b = criterion specific constants (from CTR)
- H_e = lowest observed effluent hardness
- H_{rw} = reasonable worst-case upstream receiving water hardness

Using the procedures discussed above to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water flow conditions (high flow to low flow) and under all known hardness conditions, as demonstrated in Table F-4b, for lead.

Table F-4b. Lead ECA Evaluation

		Lowest Observed Effluent Hardness			6.1 mg/L
		Reasonable Worst-case Upstream Receiving Water Hardness			16 mg/L
		Reasonable Worst-case Upstream Receiving Water Lead Concentration			0.31 µg/L¹
		Lead ECA_{chronic}²			0.066 µg/L
Effluent Fraction⁶		Fully Mixed Downstream Ambient Concentration			
		Hardness³ (mg/L)	CTR Criteria⁴ (µg/L)	Lead⁵ (µg/L)	Complies with CTR Criteria
High Flow Low Flow	1%	16	0.31	0.31	Yes
	5%	16	0.30	0.30	Yes
	15%	15	0.27	0.27	Yes
	25%	14	0.25	0.25	Yes
	50%	11	0.19	0.19	Yes
	75%	8.6	0.14	0.13	Yes
	100%	6.1	0.090	0.066	Yes

¹ Reasonable worst-case upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 16 mg/L.

² ECA calculated using Equation 4 for chronic criteria.

³ Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

⁴ Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

⁵ Fully mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.

⁶ The effluent fraction ranges from 1% at the high receiving water flow condition to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Based on the procedures discussed above, Table F-5 lists all the CTR hardness-dependent metals and the associated ECAs used in this Order.

Table F-5. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)	
	acute	chronic
Copper	1.0	0.85
Chromium III	180	21
Cadmium	0.17	0.27
Lead	1.7	0.066
Nickel	44	4.9
Silver	-0.011	--
Zinc	11	11

3. Determining the Need for WQBELs

- a. The Central Valley Water Board conducted the RPA in accordance with section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Central Valley Water Board

may use the SIP as guidance for water quality-based toxics control.¹² The SIP states in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR (unless otherwise indicated herein) constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

b. Constituents with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; 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.

i. Salinity

(a) WQO. The Basin Plan contains a chemical constituents objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for specific water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA National Recommended Ambient Water Quality Criteria for chloride includes 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 agriculture, industrial, and livestock usage. Numeric values for the protection of agriculture are typically applied based on site-specific conditions and evaluations to determine the appropriate threshold necessary to interpret the narrative chemical constituents Basin Plan objective.

Table F-6. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective ¹	Secondary MCL ³	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies ²	900, 1600, 2200	722	1409
TDS (mg/L)	Varies	500, 1000, 1500	320	320
Sulfate (mg/L)	Varies	250, 500, 600	77	77
Chloride (mg/L)	Varies	250, 500, 600	24	24

¹² See Order WQ 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

Parameter	Agricultural WQ Objective ¹	Secondary MCL ³	Effluent	
			Average	Maximum

- ¹ Narrative chemical constituents objective from the Basin Plan. Procedures for establishing the applicable numeric limitations 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 EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors.
- ³ The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The Central Valley Water Board must determine the applicable numeric limitation to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal to interpret the narrative chemical constituent objective is 106 mg/L 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 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers. However, the agricultural water quality goal is not a site-specific goal or objective, but rather a general measure to protect salt-sensitive crops. Site-specific levels of chloride for the receiving waters are necessary to interpret the narrative chemical constituents objective for protection of agricultural supply. USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for chloride. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chloride are 230 mg/L and 860 mg/L, respectively.

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 limitation to implement the narrative objective will be reviewed by CV-SALTS to ensure consistency with the efforts currently underway by CV-SALTS.

(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 Central Valley Water Board must determine the applicable numeric limitation to

implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water goal may be as low as 700 $\mu\text{mhos/cm}$ 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). However, the 700 $\mu\text{mhos/cm}$ agricultural water quality goal is not a site-specific goal or objective, but rather a general measure of electrical conductivity that was determined to protect salt-sensitive crops, such as beans, carrots, turnips, and strawberries under certain soil and climate conditions. Most other crops can tolerate higher EC concentrations without harm. Site-specific levels of EC for the receiving water to interpret the narrative chemical constituents objective in the Basin Plan for protection of agricultural supply are necessary. Overall, salinity of agricultural irrigation water must be maintained at levels in which growers do not need to take extra measures to minimize or eliminate any harmful impacts.

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 limitation to implement the narrative objective will be reviewed by CV-SALTS to ensure consistency with the efforts currently underway by CV-SALTS.

- (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. The Central Valley Water Board must determine the applicable numeric limitation to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal may be as low as 450 mg/L 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). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. However, the 450 mg/L water quality goal is not a site-specific goal, but rather a general measure of TDS that was determined to protect salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm. Site-specific levels of TDS

for the receiving water to interpret the narrative chemical constituents objective are necessary.

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 limitation to implement the narrative objective will be reviewed by CV-SALTS to ensure consistency with the efforts currently underway by CV-SALTS

(b) RPA Results.

- (1) Chloride.** Chloride concentration in the effluent was 24 mg/L, as sampled on 28 April 2010, which does not exceed the Secondary MCL.
- (2) Electrical Conductivity.** A review of the Discharger's monitoring data shows an average effluent EC of 722 $\mu\text{mhos/cm}$, with a range from 3.96 $\mu\text{mhos/cm}$ to 1409 $\mu\text{mhos/cm}$ and a highest annual average (calendar year) of 829 $\mu\text{mhos/cm}$. These levels do not exceed the Secondary MCL but do exceed the general agricultural water goal. However, based on receiving water data, the proximity of the discharge to agricultural use, and the Discharger's recent efforts to minimize salinity, the discharge does not have a reasonable potential to cause or contribute to an exceedance of the general agricultural water goal.

The background receiving water EC averaged 54 $\mu\text{mhos/cm}$ while the downstream receiving water averaged 33 $\mu\text{mhos/cm}$. The highest downstream receiving water EC value reported between March 2008 and June 2010 was 61.5 $\mu\text{mhos/cm}$.

Water in Big Creek and the San Joaquin River will likely not be used for agricultural use until after its storage in Millerton Lake. Releases from Millerton Lake generally have an EC of less than 60 $\mu\text{mhos/cm}$ and serve as a source of irrigation water for much of the San Joaquin Valley. Therefore, it is very unlikely the discharge could cause an exceedance of the general agricultural water goal for EC at the point of diversion for agricultural use.

In April 2010, the Discharger submitted a Salinity Evaluation and Minimization Plan along with its Report of Waste Discharge. In its evaluation, several possible causes of the increasing EC concentrations were identified, all involving phosphorus and removal requirements. Aluminum sulfate is utilized in phosphorus removal in the treatment system. Aluminum sulfate use increased due to reported increases of phosphorus concentrations in the influent wastewater. In

addition, the Discharger believes the EC may be further increased by the inefficiency of the reaction between aluminum sulfate and phosphorus resulting in excess aluminum sulfate in the effluent. The Discharger proposed to modify the wastewater processes to increase the treatment efficiency between phosphorus and aluminum sulfate, which would result in a decrease in the amount of aluminum sulfate required. In addition, source control measures are to be implemented to attempt to decrease the influent phosphorus concentration. A public awareness campaign is to be conducted to make households aware of the issue and bring to their attention low phosphate cleaning products.

Effluent EC concentrations have decreased since the Discharger began implementing its Salinity Evaluation and Minimization Plan. A review of the Discharger's monitoring data from August 2010 to January 2012 shows an average effluent EC of 446 $\mu\text{mhos/cm}$, with a range from 45.2 $\mu\text{mhos/cm}$ to 859 $\mu\text{mhos/cm}$.

This Order requires the Discharger to submit an addendum to the Salinity Evaluation and Minimization Plan that it submitted with the Report of Waste Discharge. In addition, this Order includes a requirement that the Discharger evaluate all sources of phosphorus, for which treatment is likely contributing to higher effluent salinity.

(3) Sulfate. Sulfate concentration in the effluent was 77 mg/L as sampled on 28 April 2010, which does not exceed the Secondary MCL.

(4) Total Dissolved Solids. The TDS effluent concentration was 320 mg/L, as sampled on 28 April 2010, which does not exceed the Secondary MCL.

- c. Constituents with Limited Data.** Reasonable potential cannot be determined for the following constituent because effluent data are limited or ambient background concentrations are not available. The Discharger is required to continue to monitor for this constituent in the effluent and receiving water using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.
- i. Silver.** The Discharger collected one effluent sample and one receiving water sample for silver during the term of Order No. R5-2005-0156. The CTR criterion for silver was calculated using the default conversion factor and reasonable worst-case measured hardness, as described in section VI.C.2.d of this Fact Sheet. The detection limits achieved by the analytical laboratory were much higher than the silver criterion and reasonable potential could not be determined. Water quality data collected by the Discharger for another one of its regulated facilities indicate silver was not detected above a method detection limit of 0.063 $\mu\text{g/L}$ in water bodies near Big Creek and of similar quality. This Order requires the Discharger to collect additional effluent and

receiving water data for silver. Staff does not anticipate silver to be present in the receiving water or the discharge in concentrations that exceed the CTR criterion; however, if the monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, then this Order may be reopened and modified by adding appropriate effluent limitations.

- d. 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 aluminum, ammonia (as N), BOD₅, copper, lead, zinc, nitrite plus nitrate (as N), pH, phosphorus, settleable solids, TSS, and total coliform. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. Aluminum

- (a) WQO.** USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. Secondary Maximum Contaminant Level - Consumer Acceptance Limit for aluminum is 200 µg/L.

Footnote L of Table 2 on page 19 of the National Recommended Ambient Water Quality Criteria Correction (April 1999), indicates that the chronic aquatic life criterion is based on studies conducted under specific receiving water conditions with a low pH (6.5 to 6.6 pH units) and low hardness (<10 mg/L as CaCO₃).

USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The receiving stream has been measured to have a low hardness—typically between 2.8 and 16 mg/L (as CaCO₃), and pH between 6.2 and 7.4. These conditions are supportive of the applicability of the NAWQC for aluminum, according to USEPA's development document.

- (b) RPA Results.** The maximum effluent concentration (MEC) for aluminum was 360 µg/L while the maximum observed upstream receiving water concentration was 230 µg/L. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the aquatic life criteria.
- (c) WQBELs.** This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for aluminum of 55 µg/L and 160 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 360 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. The Discharger submitted an infeasibility analysis on 12 January 2012. As discussed in section IV.E. of this Fact Sheet, a compliance schedule for aluminum has been included in this Order.

ii. Ammonia

(a) WQO. The NAWQC for the protection of freshwater aquatic life for total ammonia recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Big Creek has a beneficial use of cold freshwater habitat, the recommended criteria for waters where salmonids and early life stages are present were used.

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

The maximum observed 30-day rolling average temperature and the maximum observed pH of the effluent were used to calculate the 30-day CCC. The maximum observed 30-day average effluent temperature was 71.4°F (21.9°C), for the rolling 30-day period ending 30 June 2010. The maximum observed effluent pH value was 8.1 on 8 April 2010. Using a pH value of 8.1 and the worst-case temperature value of 71.4°F (21.9°C) on a rolling 30-day basis, the resulting 30-day CCC is 1.28 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.28 mg/L (as N), the 4-day average concentration that should not be exceeded is 3.20 mg/L (as N).

(b) RPA Results. Per Section 1.3, Step 7, of the SIP, the facility type may be used as information to aid in determining if a water quality based effluent limitation is required. The Discharger treats domestic wastewater. Untreated domestic wastewater contains ammonia. 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 would violate the Basin Plan narrative toxicity objective. The MEC for ammonia was 5.7 mg/L, which exceeds criteria. Ammonia was not detected in the upstream receiving water. Ammonia has the potential to be found in the effluent from any WWTP treating domestic or municipal sewage. Although WWTPs can do a very good job of reducing ammonia concentrations, the potential for treatment process upsets and variability to occur exists. Therefore, effluent limitations for ammonia are included in this Order based on best professional judgment, even if reasonable potential is not found based on effluent concentrations alone. Per Section 1.3, Step 7 of the SIP, other information (e.g., such as knowledge that ammonia is an inherent component of domestic wastewater) is used to determine that water quality based effluent limitations are required.

- (c) **WQBELs.** The Central Valley Water Board calculated WQBELs for ammonia in accordance with SIP procedures. 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 effluent limitations 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 chronic criterion was calculated assuming a 30-day averaging period. The lowest LTA representing the acute criterion, 4-day chronic criterion, and 30-day chronic criterion is then selected for deriving the AMEL and the MDEL. The remainder of the WQBELs calculations for ammonia were performed according to the SIP procedures. This Order contains a final AMEL of 0.70 mg/L and MDEL of 2.1 mg/L for ammonia as shown in Table F-7 of this Fact Sheet.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 5.7 mg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. The Discharger submitted an infeasibility analysis on 12 January 2012. As discussed in section IV.E. of this Fact Sheet, a compliance schedule for ammonia (as N) has been included in this Order.

iii. Copper

- (a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Section 1.3 of the SIP contains

requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that CTR criteria be adjusted for hardness, as applicable. In this case, the minimum observed effluent hardness was used to adjust the CTR criteria for copper when comparing the MEC to the criteria and the minimum observed receiving water hardness was used when comparing the maximum background receiving water copper concentrations to the criteria. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, as described in section VI.C.2.d. of this Fact Sheet, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 1.0 µg/L and 0.85 µg/L, respectively, as total recoverable.

- (b) RPA Results.** The MEC for copper was 18 µg/L (reported as total recoverable), which was observed on 18 July 2011. The maximum background receiving water concentration for copper was 0.06 µg/L, reported as an estimated concentration. Because the MEC exceeds the chronic criterion for the effluent, copper in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.
- (c) WQBELs.** This Order contains a final AMEL of 0.55 µg/L and MDEL of 1.0 µg/L for copper as shown in Table F-7 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.
- (d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 18 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for copper are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the copper effluent limitations is established in TSO R5-2012-XXXX in accordance with CWC section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.
- iv. Flow.** This Order contains an average dry weather discharge flow effluent limitation of 0.023 mgd. The Discharger has not conducted an antidegradation analysis to discharge up to the design flow of the current Facility configuration, which is 0.06 mgd. Therefore, the flow effluent limitation from previous Order No. R5-2005-0156 is carried over as a water quality-based effluent limitation.

v. Lead

- (a) WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Using the default conversion factors and reasonable worst-case measured hardness, as described in section VI.C.2.d of this Fact Sheet, the applicable acute (1-hour average) criterion is 1.7 µg/L and the applicable chronic (4-day average) criterion is 0.066 µg/L, as total recoverable.
- (b) RPA Results.** The maximum effluent concentration (MEC) for lead was 0.75 µg/L (reported as total recoverable) which was observed on 20 June 2011. Lead was not detected in the upstream receiving water. Therefore, lead in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.
- (c) WQBELs.** This Order contains a final AMEL of 0.053 µg/L and MDEL of 0.11 µg/L for lead as shown in Table F-7 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.
- (d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 0.75 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for lead are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the lead effluent limitations is established in TSO R5-2012-XXXX in accordance with CWC section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

vi. Nitrate and Nitrite

- (a) WQO.** DPH has adopted Primary MCLs for the protection of human health for nitrite (as N) and nitrite plus nitrate (as N) that are equal to 1 mg/L and 10 mg/L, respectively.
- (b) RPA Results.** Untreated domestic wastewater contains ammonia. 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. Nitrate and nitrite are known to cause adverse health effects in humans. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream.

The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Primary MCL for nitrite plus nitrate (as N). The MEC for nitrate (as NO_3) was 51 mg/L.

(c) WQBELs. This Order contains a final AMEL for nitrite plus nitrate (as N) of 10 mg/L, based on the protection of the Basin Plan's narrative chemical constituents objective and to assure the treatment process adequately nitrifies and denitrifies the waste stream. In addition, this Order includes effluent monitoring for nitrite (as N).

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the nitrate (as NO_3) MEC of 51 mg/L is greater than the applicable WQBEL. Based on the sample results for the effluent, the limitation appears to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitation for nitrite plus nitrate (as N) is a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the nitrite plus nitrate (as N) effluent limitation is established in TSO **R5-2012-XXXX** in accordance with CWC section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

vii. Pathogens

(a) WQO. DPH has developed reclamation criteria at Title 22, 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. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median effluent limitation.

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 DPH's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for 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. The beneficial uses of Big Creek include municipal and domestic supply, water contact recreation, and agricultural irrigation supply. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH. The MEC for total coliform organisms was 900 MPN/100 mL, which was observed on 18 July 2008. Therefore, total coliform organisms in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the reclamation criteria.

(c) WQBELs. 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.

In addition to coliform limitations, turbidity operational specifications have been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. A tertiary treatment process that uses ultrafiltration is capable of reliably producing an effluent with turbidity lower than 0.2 nephelometric turbidity units (NTU). Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which results in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure a level of treatment consistent with DPH recommended Title 22 disinfection criteria, weekly average effluent limitations are impracticable for turbidity. This Order includes operational specifications for turbidity of 0.2 NTU not to be exceeded more than 5% of the time within a 24-hour period; and 0.5 NTU as an instantaneous maximum.

Additionally, final WQBELs for BOD₅, TSS, and BOD₅ and TSS percent removal are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD₅ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD₅,

TSS, and BOD₅ and TSS percent removal are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD₅ and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD₅ and TSS and higher removal rates than secondary standards. Therefore, this Order requires average monthly and average weekly effluent limitations for BOD₅ and TSS of 10 mg/L and 15 mg/L, respectively, and an average monthly BOD₅ and TSS percent removal of 90%, which are technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD₅ and TSS of 20 mg/L is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

This Order contains effluent limitations for BOD₅, total coliform organisms, TSS, and BOD₅ and TSS percent removal, 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 CWC section 13241 in establishing these requirements.

- (d) Plant Performance and Attainability.** Monitoring data show the Discharger can generally comply with the effluent limitations for BOD₅, TSS, BOD₅ and TSS percent removal, and total coliform organisms.

viii. 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.** The discharge of domestic wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s numeric objectives for pH.
- (c) WQBELs.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) Plant Performance and Attainability.** Effluent data from December 2007 to July 2010 show that the pH ranged from 6.3 to 8.1. While the discharge shows reasonable potential, monitoring data show that the Discharger can generally comply with the pH effluent limitations. In addition, the Facility has a pH control system.

ix. Phosphorus

- (a) **WQO.** Excessive quantities of phosphorus in combination with nitrogen, also a nutrient, could cause undesirable algal growth in the receiving waters. According to algal growth potential studies, removal of phosphorus to a concentration at or below 0.5 mg/L deprives algae of an essential nutrient and prevents algal growth.
- (b) **RPA Results.** The maximum effluent concentration for phosphorus was 1.2 mg/L. Therefore, phosphorus in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the recommended phosphorus objective.
- (c) **WQBELs.** This Order carries over the total phosphorus average monthly effluent limitation of 0.5 mg/L and maximum daily effluent limitation of 1.5 mg/L contained in Order No. R5-2005-0156.
- (d) **Plant Performance and Attainability.** The Discharger removes phosphorus by adding alum. Effluent data show the Discharger can generally comply with the total phosphorus effluent limitations.

x. Settleable Solids

- (a) **WQO.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”
- (b) **RPA Results.** The discharge of domestic wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s narrative objective for settleable solids.
- (c) **WQBELs.** This Order contains average monthly and average daily effluent limitations for settleable solids. Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order. A daily maximum effluent limitation for settleable solids is included in the Order, in lieu of a weekly average, to ensure that the treatment works operate in accordance with design capabilities.
- (d) **Plant Performance and Attainability.** Analysis of the effluent data indicates the Discharger is able to comply with these effluent limitations.

xi. Zinc

- (a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for zinc. Using the default conversion factors and reasonable worst-case measured hardness, as described in section VI.C.2.d of this Fact Sheet, the applicable acute (1-hour average) criterion

and the applicable chronic (4-day average) criterion are 11 µg/L, as total recoverable.

(b) RPA Results. The MEC for zinc was 89 µg/L (reported as total recoverable) which was observed on 3 June 2011. Zinc was not detected in the upstream receiving water. Therefore, zinc in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

(c) WQBELs. This Order contains a final AMEL of 6.4 µg/L and MDEL of 11 µg/L for zinc as shown in Table F-7 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 89 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for zinc are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the zinc effluent limitations is established in **TSO R5-2012-XXXX** in accordance with CWC section 13300, which requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

4. WQBEL Calculations

- a.** This Order includes WQBELs for BOD₅, TSS, BOD₅ and TSS percent removal, pH, settleable solids, phosphorus, total coliform organisms, ammonia (as N), nitrite plus nitrate (as N), acute whole effluent toxicity, aluminum (total recoverable), copper (total recoverable), lead (total recoverable), and zinc (total recoverable). The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment G for the WQBELs calculations for aluminum, ammonia (as N), copper, lead, and zinc.
- b. Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

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

where:

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

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. 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 WQBELs 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.** WQBELs 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., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL 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-7. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	30	--	--
	lbs/day	1.9	2.9	5.8	--	--
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day	1.9	2.9	5.8	--	--
pH	standard units	--	--	--	6.5	8.5
Settleable Solids	mL/L	0.1	--	0.2	--	--
Phosphorus, Total	mg/L	0.5	--	1.5	--	--
	lbs/day	0.1	--	0.3	--	--
Total Coliform Organisms	MPN/100 mL	23 ¹	--	2.2 ²	--	240
Ammonia Nitrogen, Total (as N)	mg/L	0.70	--	2.1	--	--
Nitrite Plus Nitrate (as N)	mg/L	10.	--	--	--	--
Aluminum, Total Recoverable	µg/L	55	--	160	--	--
Copper, Total Recoverable	µg/L	0.55	--	1.0	--	--
Lead, Total Recoverable	µg/L	0.053	--	0.11	--	--
Zinc, Total Recoverable	µg/L	6.4	--	11	--	--

¹ Applied as not to be exceeded more than once in a 30-day period

² Applied as a 7-day median.

- a. **Percent Removal.** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 90 percent.
- b. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - i. Minimum for any one bioassay ----- 70%
 - ii. Median for any three consecutive bioassays ----- 90%
- c. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 0.023 million gallons per day.
- d. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic

toxicity, as specified in the Monitoring and Reporting Program (Attachment E, section V). This Order also contains effluent limitations for acute and chronic toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. Acute Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at page III-8.01) The Basin Plan also states that, “...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”. 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-8.01). Based on chronic WET testing performed by the Discharger in April 2010, the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective.

Table F-8. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow		Water Flea		Green Algae
	<i>Pimephales promelas</i>		<i>Ceriodaphnia dubia</i>		<i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
4/20/2010	>1.00	>1.00	1.00	1.00	>1.00

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrate the discharge

has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective

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 Region¹³ that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-0012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-0012, *"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 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, Special Provision 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 TRE in accordance with an approved TRE work plan. The numeric toxicity monitoring trigger 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.

¹³ 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).

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

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

Mass-based effluent limitations were calculated based upon the Average Dry Weather Flow permitted in Section IV.A.1.e. of this Order.

2. Averaging Periods for Effluent Limitations

The Facility is not a publicly owned treatment works (POTW). However, the Facility treats domestic wastewater and therefore the averaging periods used in this Order are consistent with the requirements found in 40 CFR 122.45(d) which requires average weekly and average monthly discharge limitations for POTWs unless impracticable. 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 POTWs 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 settleable solids, phosphorus, ammonia (as N), aluminum, copper, lead, 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.

3. Satisfaction of Anti-Backsliding Requirements

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

All effluent limitations in this Order are at least as stringent as the effluent limitations contained in Order No. R5-2005-0156.

4. Satisfaction of Antidegradation Policy

This Order does not allow for an increase in flow or mass of pollutants to the receiving water from that allowed in Order No. R5-2005-0156. Therefore, a complete antidegradation analysis is not necessary. This Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 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 only contains WQBELs for individual pollutants. The WQBELs consist of restrictions on BOD₅, TSS, BOD₅ and TSS percent removal, pH, settleable solids, phosphorus, total coliform organisms, ammonia (as N), nitrite plus nitrate (as N), acute whole effluent toxicity, flow, aluminum (total recoverable), copper (total recoverable), lead (total recoverable), and zinc (total recoverable). This Order includes new effluent limitations for chronic whole effluent toxicity, ammonia (as N), nitrite plus nitrate (as N), aluminum (total recoverable), copper (total recoverable), lead (total recoverable), and zinc (total recoverable) to meet numeric objectives or protect beneficial uses.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA 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 USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless “applicable water quality standards for purposes of the CWA” pursuant to 40 CFR 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 No. 001**

Table F-9. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	30	--	--
	lbs/day	1.9	2.9	5.8	--	--
	% Removal	90	--	--	--	--
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day	1.9	2.9	5.8	--	--
	% Removal	90	--	--	--	--
pH	standard units	--	--	--	6.5	8.5
Settleable Solids	mL/L	0.1	--	0.2	--	--
Phosphorus, Total	mg/L	0.5	--	1.5	--	--
	lbs/day	0.1	--	0.3	--	--
Total Coliform Organisms	MPN/100 mL	23 ¹	--	2.2 ²	--	240
Ammonia Nitrogen, Total (as N)	mg/L	0.70	--	2.1	--	--
Nitrite Plus Nitrate (as N)	mg/L	10.	--	--	--	--
Aluminum, Total Recoverable	µg/L	55	--	160	--	--
Copper, Total Recoverable	µg/L	0.55	--	1.0	--	--
Lead, Total Recoverable	µg/L	0.053	--	0.11	--	--
Zinc, Total Recoverable	µg/L	6.4	--	11	--	--

¹ Applied as not to be exceeded more than once in a 30-day period

² Applied as a 7-day median.

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

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

b. Average Dry Weather Flow. The average dry weather discharge flow shall not exceed 0.023 million gallons per day.

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

E. Interim Effluent Limitations

1. Compliance Schedules for Aluminum and Ammonia (as N). The effluent limitations for aluminum and ammonia (as N) in this Order are new effluent limitations that were not included in Order No. R5-2005-0156. These new limitations

are based on the new application of the USEPA National Recommended Ambient Water Quality Criteria. The Discharger is unable to immediately comply with the new effluent limitations; therefore, compliance schedules for compliance with the final effluent limitations for aluminum and ammonia (as N) are established in this Order. The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy), and the Discharger's application demonstrates the need for additional time to implement actions to comply with the new, final effluent limitations, as described below. Therefore, compliance schedules for compliance with the final effluent limitations for aluminum and ammonia (as N) are established in this Order.

Compliance schedules are necessary because the Discharger must implement actions, including allowing additional time for the Facility to optimize treatment processes and provide additional operator training to allow better understanding of the procedures for air control for nitrification/denitrification and alum dosing for phosphorus removal. The Discharger has made diligent efforts to quantify the pollutant levels in the discharge. The compliance schedules are as short as possible.

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

- 2. Interim Effluent Limitations for Aluminum and Ammonia (as N).** The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than one year. Interim effluent limitations must be based on current Facility performance or existing final effluent limitations, whichever is more stringent. When feasible, interim effluent limitations must correspond with final effluent limitations with respect to averaging bases (e.g., AMEL, MDEL, etc.) for effluent limitations for which compliance protection is intended.

The compliance schedules in this Order do not exceed one year. However, interim effluent limitations are still being included. The interim effluent limitations for aluminum and ammonia (as N) in this Order are based on the current Facility performance. In developing the interim effluent limitations, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim effluent limitations that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists*, Kennedy and Neville, Harper and Row). Therefore, when there are ten or more data points for a constituent, the interim effluent limitations are established as the mean plus 3.3 standard deviations of the available data.

When there are less than ten sampling data points available, the USEPA *Technical Support Document for Water Quality-based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of effluent sampling. The TSD recognizes that a minimum of ten data points are necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily effluent limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current Facility performance level. Therefore, when there are less than ten sampling points for a constituent, interim effluent limitations are based on 3.11 times the maximum observed effluent concentration (MEC) to obtain the maximum daily interim effluent limitation.

The Central Valley Water Board finds that the Discharger can undertake source control and treatment measures at the Facility to maintain compliance with the interim effluent limitations included in this Order. Interim effluent limitations are established when compliance with the final effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim effluent limitations, however, establish an enforceable ceiling concentration until compliance with the final effluent limitations can be achieved. Limited, short-term degradation of the receiving stream is consistent with state and federal anti-degradation policies and is specifically authorized by 40 CFR 122.47 and the USEPA-approved Compliance Schedule Policy.

The following table summarizes the calculations of the interim effluent limitations for aluminum and ammonia (as N):

Table F-10. Interim Effluent Limitations Calculation Summary

Parameter	Units	MEC	Mean	Standard Deviation	Number of Samples	Maximum Daily Interim Limitation	Average Monthly Interim Limitation
Aluminum Total Recoverable	µg/L	360	37	57	46	220	220
Ammonia Nitrogen, Total (as N)	mg/L	5.7	0.36	0.86	116	3.2	3.2

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and 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 requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

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 [B]oard will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater

1. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. The 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 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. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD₅ and TSS reduction requirements). The monitoring frequencies for BOD₅ and TSS (1/week) have been retained from Order No. R5-2005-0156.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 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 BOD₅ (1/week), TSS (1/week), total coliform organisms (3/week), settleable solids (1/week), and pH (3/week) have been retained from Order No. R5-2005-0156 to determine compliance with effluent limitations for these parameters.
3. CWC section 13176, subdivision (a), states: "*The analysis of any material required by [CWC 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 Department of Public Health certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

CWC Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA. (CWC sections 13370(c), 13372, and 13377.) CWC Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements. (CWC section 13372(a)) The holding time requirements are 15 minutes for dissolved oxygen and pH, and immediate analysis is required for temperature. (40 CFR 136.3(e), Table II)

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Annual 96-hour bioassay testing is required to demonstrate compliance with the effluent limitations for acute toxicity.
2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with effluent limitations and the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. This Order establishes monthly monitoring for hardness to ensure the water quality criteria/objectives for hardness-based metals are correctly adjusted when determining reasonable potential as specified in section 1.3 of the SIP.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in Special Provision VI.C.4.e of this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR 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 and to track the Discharger's efforts to minimize salinity increases through use of the water supply.

3. UV Disinfection System Monitoring

UV system specifications and monitoring and reporting is required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed pursuant to recommendations by the California Department of Public Health (DPH), and the National Water Research Institute (NWRI), and American Water Works Association Research Foundation NWRI/AWWARF's "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" to ensure sufficient disinfection for the protection of public health.

4. Tertiary Treatment Filters Monitoring

Turbidity monitoring after the tertiary treatment filters but before disinfection is required to determine the effectiveness of the treatment process and to ensure compliance with the required level of disinfection.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

40 CFR 122.41(a)(1) and (b) through (n) 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. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. **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 Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity effluent limitation, new acute toxicity effluent limitations, and/or effluent limitations for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on that objective.
- b. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria and effluent limitations for applicable priority pollutant inorganic constituents and aluminum. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper, lead, and zinc. 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.

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-8.01.) Based on whole effluent chronic toxicity testing performed by the Discharger in April 2010, the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a TRE work plan in accordance with USEPA 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

Monitoring Trigger. A numeric toxicity monitoring trigger of $> 1 \text{ TUc}$ (where $\text{TUc} = 100/\text{NOEC}$) 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.

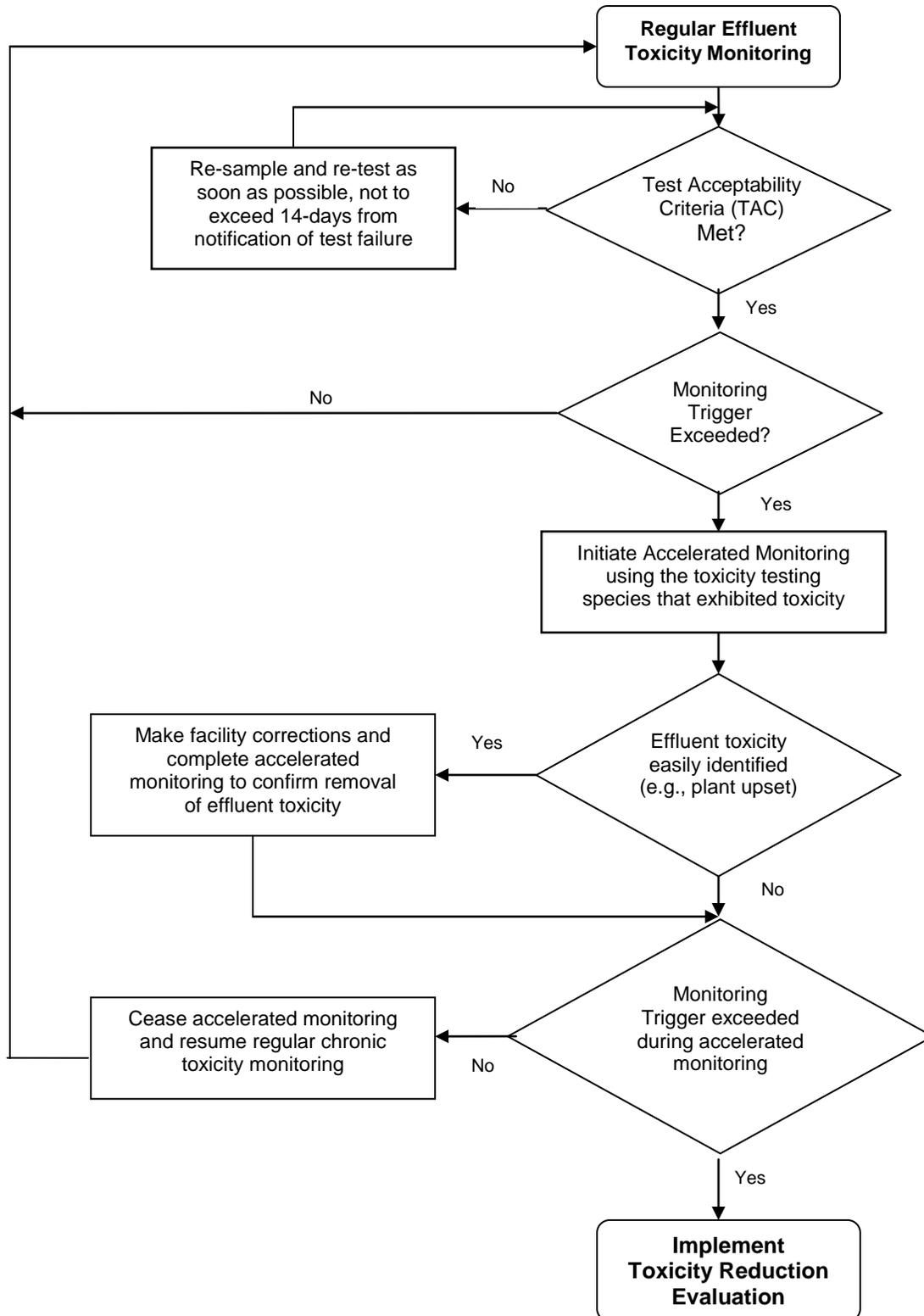
The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water 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 the 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-1), 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 work plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*, EPA/833-B-99/002, August 1999.
- *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs)*, EPA/600/2-88/070, April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition*, EPA 600/6-91/003, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA/600/6-91/005F, May 1992.
- *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.
- *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.
- *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.
- *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.
- *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991.

**Figure F-1
 WET Accelerated Monitoring Flow Chart**



3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger previously submitted a Salinity Evaluation and Minimization Plan with its Report of Waste Discharge. The Plan did not fully address all sources of salinity to and from the Facility, including chemicals used for treatment of drinking water and wastewater. This Order requires the Discharger to submit an addendum to its Salinity Evaluation and Minimization Plan that addresses all sources of salinity and how the Discharger intends to minimize those sources. The Order also requires the Discharger to address sources of phosphorus in the Facility influent and how it intends to control these sources, which may be contributing to higher salinity in the discharge due to phosphorus treatment.

4. Construction, Operation, and Maintenance Specifications

- a. **Turbidity.** Operational specifications for turbidity are included as an indicator of the effectiveness of the treatment process and to assure compliance with effluent limitations for total coliform. The tertiary treatment process at the Facility is capable of reliably meeting a turbidity lower than 0.2 nephelometric turbidity units (NTU). Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which can result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure, and rapid corrective action. The operational specifications for turbidity included in this Order are specified in Title 22, CCR, section 60301.320(b) for treatment processes that rely on microfiltration, ultrafiltration, nanofiltration, or reverse osmosis.
- b. **UV Disinfection System.** This Order includes requirements for operating and maintaining the UV disinfection system. Proper maintenance and operation ensure that the UV system properly disinfects the wastewater to meet effluent limitations.
- c. **Biosolids.** The sludge/biosolids provision is required to ensure compliance with State disposal requirements (Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq.) and USEPA sludge/biosolids use and disposal requirements at 40 CFR Part 503.

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

- a. On 12 January 2012, the Discharger submitted a request and justification for compliance schedules for the new aluminum and ammonia (as N) effluent limitations included in this Order. The compliance schedule justification included all items specified in the Compliance Schedule Policy. This Order establishes compliance schedules for the new, final effluent limitations for aluminum and

ammonia (as N) and requires full compliance by the dates specified in Provisions VI.C.7.a. and VI.C.7.b. For compliance with the final effluent limitations for aluminum, the Discharger intends to provide additional training to its operators to allow better understanding and operation of the alum dosing system for phosphorus removal. For compliance with the final effluent limitations for ammonia (as N), the Discharger requested an adjustment period to allow mixed liquor concentrations in the treatment system to reach the design range for providing proper nitrification/denitrification, and also requested time to provide additional training to the plant operators for operation of the air supply system. The Discharger shut down its treatment system for maintenance and re-started the system in November 2011 which caused the mixed liquor concentrations to drop below the design range required for proper nitrification/denitrification.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board is considering the issuance of WDRs that will serve as a NPDES permit for the Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDRs. The Central Valley Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through posting at the Facility, at the Discharger's district office, at the local post office and on the Central Valley Water Board's web site.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Officer 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, written comments must be received at the Central Valley Water Board offices by 5:00 p.m. on **20 April 2012**.

C. Public Hearing

The Central Valley Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 7/8 June 2012
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Central Valley Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates, time, and venues may change. Our Web address is <http://www.waterboards.ca.gov/centralvalley/> where you can access the current agenda for changes in dates, time, and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be received by the State Water Board within 30 days of the Central Valley Water Board's action, and must be submitted to the following address:

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the following address at any time between 8:00 a.m. and 4:30 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (559) 445-5116. Our office is at 1685 "E" Street, Fresno, CA 93706.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs 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 Aide Ortiz at (559) 445-6083.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS FOR CONSTITUENTS OF CONCERN

Constituent	Units	MEC	B	C	CMC ¹	CCC ¹	Water & Org	Org. Only	MCL	Ag. Goal	Reasonable Potential
Copper, Total Recoverable	µg/L	18	0.06	0.85	1.0	0.85	1300	--	1000	200	Y
Lead, Total Recoverable	µg/L	0.75	ND	0.066	1.7	0.066	--	--	15	5000	Y
Silver, Total Recoverable	µg/L	ND	ND	-0.011	-0.011	--	--	--	100	--	Indeterminate
Zinc, Total Recoverable	µg/L	89	ND	11	11	11	--	--	5000	2000	Y
Aluminum, Total Recoverable	µg/L	360	230	87	750 ²	87 ²	--	--	200	5000	Y
Ammonia (as N)	mg/L	5.7	ND	1.3	1.3 ^{2,3} 3.2 ^{2,4}	2.1 ²	--	--	--	--	Y
Chloride	mg/L	24	2.4	106	860 ²	230 ²	--	--	250	106	N
Nitrite Plus Nitrate (as N)	mg/L	51 ⁵ 0.12 ⁶	ND ⁵ ND ⁶	10 (45 ⁵) (1. ⁶)	--	--	--	--	10.	--	Y
Phosphorus, Total	mg/L	1.2	ND	--	--	--	--	--	--	--	Y ⁷
Sulfate	mg/L	77	ND	250	--	--	--	--	250	--	N
Total Dissolved Solids	mg/L	320	37	450	--	--	--	--	500	450	N

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)

MCL = Drinking Water Standards Maximum Contaminant Level

Ag. Goal = Agricultural water quality goal from Ayers & Westcot

ND = Non-detect

Footnotes:

- ¹ Hardness-dependent criteria were calculated based the procedures described in Section IV.C.2.d. of the Fact Sheet.
- ² Non-CTR criteria
- ³ 30-day chronic criterion
- ⁴ 4-day chronic criterion
- ⁵ Concentrations are as Nitrate (as NO₃)
- ⁶ Concentrations are as Nitrite (as N)
- ⁷ Effluent limits from previous Order No. R5-2005-0156 are being carried over (see Section IV.C.3.d. of the Fact Sheet).

ATTACHMENT H – CALCULATIONS OF QWBELS

Parameter	Units	Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations								Final Effluent Limitations		
		HH	CMC	CCC	HH	CMC	CCC	ECA _{HH} = AMEL _{HH}	AMEL/MDEL Multiplier _{HH}	MDEL _{HH}	ECA Multiplier _{acute}	LTA _{acute}	ECA Multiplier _{chronic}	LTA _{chronic}	Lowest LTA	AMEL Multiplier ₉₅	AMEL _{LAL}	MDEL Multiplier ₉₉	MDEL _{LAL}	Lowest AMEL	Lowest MDEL
Aluminum, Total Recoverable	µg/L	200	750 ¹	87 ¹	--	--	--	1000	2.88	2876	0.15	109	0.27	23	23	2.4	55	6.9	160	55	160
Ammonia Nitrogen, Total (as N)	mg/L	--	2.14 ¹	3.20 ^{1,2} 1.28 ^{1,3}	--	--	--	--	--	--	0.10	0.21	0.16 ² 0.39 ³	0.51 ² 0.50 ³	0.21	3.1	0.66	10	2.11	0.70	2.1
Copper, Total Recoverable	µg/L	1300	1.0	0.85	--	--	--	1300	1.82	2369	0.38	0.38	0.59	0.50	0.38	1.44	0.55	2.63	1.0	0.55	1.0
Lead, Total Recoverable	µg/L	15	1.7	0.066	--	--	--	15	2.64	40	0.30	0.50	0.50	0.03 ₃	0.033	1.61	0.05 ₃	3.38	0.11	0.053	0.11
Zinc, Total Recoverable	µg/L	2100	11	11	--	--	--	2100	1.72	3605	0.42	4.6	0.63	6.9	4.6	1.38	6.4	2.37	11	6.4	11

¹ USEPA Ambient Water Quality Criteria.

² 4-day

³ 30-day