

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

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

**ORDER NO. R5-2010-XXXX  
NPDES NO. CA0081507**

**WASTE DISCHARGE REQUIREMENTS FOR  
SHASTA COUNTY SERVICE AREA NO. 17  
COTTONWOOD WASTEWATER TREATMENT PLANT  
SHASTA COUNTY**

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

**Table 1. Discharger Information**

<b>Discharger</b>	Shasta County Service Area No. 17
<b>Name of Facility</b>	Cottonwood Wastewater Treatment Plant, Cottonwood
<b>Facility Address</b>	3425 Live Oak Road
	Cottonwood, CA 96022
	Shasta 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 Shasta County Service Area No. 17 from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

**Table 2. Discharge Location**

<b>Discharge Point</b>	<b>Effluent Description</b>	<b>Discharge Point Latitude</b>	<b>Discharge Point Longitude</b>	<b>Receiving Water</b>
001	Treated Municipal Wastewater	40° 22' 46.03"	122° 16' 08.65"	Cottonwood Creek

**Table 3. Administrative Information**

This Order was adopted by the Regional Water Quality Control Board on:	<b>&lt;Adoption Date&gt;</b>
This Order shall become effective on:	<b>&lt;Effective Date&gt;</b>
This Order shall expire on:	<b>&lt;Expiration Date&gt;</b>
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:	<b>180 days prior to the expiration date</b>

**IT IS HEREBY ORDERED**, that this Order supercedes Order No. R5-2005-0037 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

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

## Table of Contents

I.	Facility Information .....	1
II.	Findings .....	1
III.	Discharge Prohibitions.....	9
IV.	Effluent Limitations and Discharge Specifications .....	10
	A. Effluent Limitations – Discharge Point No. 001 (Cottonwood Creek).....	10
	1. Final Effluent Limitations – Discharge Point No. 001 (Cottonwood Creek) .....	10
	2. Interim Effluent Limitations [NOT APPLICABLE] .....	11
	B. Land Discharge Specifications [NOT APPLICABLE] .....	11
	C. Reclamation Specifications [NOT APPLICABLE].....	11
V.	Receiving Water Limitations .....	11
	A. Surface Water Limitations.....	11
	B. Groundwater Limitations .....	13
VI.	Provisions .....	14
	A. Standard Provisions.....	14
	B. Monitoring and Reporting Program (MRP) Requirements .....	18
	C. Special Provisions.....	18
	1. Reopener Provisions .....	18
	2. Special Studies, Technical Reports and Additional Monitoring Requirements.....	20
	3. Best Management Practices and Pollution Prevention – Not Applicable .....	22
	4. Construction, Operation and Maintenance Specifications .....	22
	5. Special Provisions for Municipal Facilities (POTWs Only) .....	23
	6. Other Special Provisions .....	26
	7. Compliance Schedules [NOT APPLICABLE].....	26
VII.	Compliance Determination .....	26

## List of Tables

Table 1.	Discharger Information .....	Cover
Table 2.	Discharge Location .....	Cover
Table 3.	Administrative Information .....	Cover
Table 4.	Facility Information.....	1
Table 5.	Basin Plan Beneficial Uses.....	3
Table 6.	Effluent Limitations – Discharge Point No. 001.....	10

## List of Attachments

Attachment A – Definitions .....	A-1
Attachment B – Map .....	B-1
Attachment C – Flow Schematic.....	C-1
Attachment D – Standard Provisions.....	D-1
Attachment E – Monitoring and Reporting Program (MRP).....	E-1
Attachment F – Fact Sheet.....	F-1
Attachment G – Summary of Reasonable Potential Analysis .....	G-1

**I. FACILITY INFORMATION**

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

**Table 4. Facility Information**

<b>Discharger</b>	Shasta County Service Area No. 17
<b>Name of Facility</b>	Cottonwood Wastewater Treatment Plant, Cottonwood
<b>Facility Address</b>	3425 Live Oak Road
	Cottonwood, CA 96022
	Shasta County
<b>Facility Contact, Title, and Phone</b>	Randy Gillichbauer, Utilities Superintendent, (530) 347-0431
<b>Mailing Address</b>	1855 Placer Street
	Redding, CA 96001
<b>Type of Facility</b>	Publicly Owned Treatment Works
<b>Facility Design Flow</b>	0.43 million gallons per day (MGD)

**II. FINDINGS**

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

**A. Background.** Shasta County Service Area No. 17 (hereinafter Discharger) is currently discharging pursuant to Waste Discharge Requirements (WDRs) Order No. R5-2005-0037 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081507. The Shasta County Department of Public Works provides oversight and management of County Service Area No. 17. The Discharger submitted a complete Report of Waste Discharge on 9 September 2009, and applied for a NPDES permit renewal to discharge an average dry weather flow of up to 0.43 MGD of treated wastewater from the Cottonwood Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 25 September 2009.

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 publicly owned treatment works (POTW). The treatment system at the Facility consists of a headworks with bar screen and Parshall flume with ultrasonic level sensor; two, parallel oxidation ditches with aerators; two, parallel secondary clarifiers with skimmers; traveling-bridge sand filter unit; chlorine disinfection with chlorine gas; serpentine chlorine contact chamber; dechlorination by addition of sulfur dioxide; an outfall line and diffuser to Cottonwood Creek; a northern 4.3 acre-feet aerated sludge settling basin, a southern 0.63 acre-feet aerated sludge settling basin; and four, sludge/sand drying beds.

Currently, wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Cottonwood Creek, a water of the United States, tributary to the Sacramento River within the Lower Cottonwood Hydrologic Sub Area No. 508.20, as depicted on interagency hydrologic maps prepared by the Department of Water Resources. 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 federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (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 Water Code (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 are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an 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 Title 40 of the Code of Federal Regulations (CFR), Part 122.44 (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 Secondary Treatment Standards at 40 CFR Part 133. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. Water Quality-based Effluent Limitations.** 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, that 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, water quality-based effluent limitations (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, Fourth Edition (Revised September 2009), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. 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.

As discussed in detail in the Fact Sheet, beneficial uses applicable to Cottonwood Creek are as follows:

**Table 5. Basin Plan Beneficial Uses**

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

The Basin Plan includes a 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 130, et seq.)” The Basin Plan also states, “Additional treatment beyond minimum federal standards

*will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.* Cottonwood Creek is tributary to the Sacramento River. The Sacramento River from the confluence of Cottonwood Creek to Red Bluff is listed as a WQLS for “unknown toxicity” in the 303(d) list of impaired water bodies. Effluent limitations applicable to this listing are included in this Order.

- 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 the 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 the 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, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board’s Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See *In the Matter of Waste Discharge Requirements for Avon Refinery* (State Water Board Order WQ 2001-06 at pp. 53-55). See also *Communities for a Better Environment et al. v. State Water Resources Control Board*, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was 25 September, 1995 (see Basin Plan at page IV-16). Consistent with the State Water Board’s Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a “new interpretation” of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., *Whole Effluent*

Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional 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 Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order does not include compliance schedules and/or interim effluent limitations. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) and/or discharge specifications 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 (WQS) become effective for CWA purposes. (40 CFR 131.21; 65 Fed. Reg. 24641 (April 27, 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 contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), and pH. The WQBELs consist of restrictions on copper, zinc, cyanide, nitrate, bis-2-ethylhexylphthalate, chlorodibromomethane, dichlorobromomethane, ammonia, pH, pathogens, and total residual chlorine. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Central Valley Water Board has considered the factors in CWC section 13241 in

establishing these requirements.

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 are based on the CTR-SIP, which was approved by USEPA on 1 May 2001. 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 [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 is consistent with 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 State Water Board Resolution No. 68-16.

This Order grants mixing zones and dilution credits for several pollutants. As a condition for allowing the mixing zones and dilution credits, the Central Valley Water Board requires that Best Practicable Treatment or Control (BPTC) of these pollutants is implemented by the Discharger. The Central Valley Water Board finds, based on information in the record, including the Discharger's Antidegradation Analysis report, that:

BPTC for the control and removal of copper, zinc, and bis-2-ethylhexylphthalate is secondary treatment plus the use of the Facility's tertiary filters, effluent diffuser, and source control and minimization;

BPTC for the control and removal of cyanide, chlorodibromomethane, and dichlorobromomethane is secondary treatment plus the use of the Facility's tertiary filters, effluent diffuser, and automated flow/concentration-based chlorination/dechlorination system; and,

BPTC for the control and removal of ammonia and nitrate is secondary treatment plus

the use of the Facility's nitrification and denitrification processes and capabilities, and effluent diffuser.

- O. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) 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. Some effluent limitations in this Order are less stringent than those in the previous Order. The establishment of less stringent, or removal of, water quality based effluent limitations based on newly available information, is allowed under Section 303(d)(4), and 402(o)(2)(A) and (B)(i) of the CWA. The establishment of less stringent, or removal of, technology based effluent limitations based on a facility upgrade is allowed under 40 CFR 122.44(l)(2)(i)(A). As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.
- 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 limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
- Q. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes 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. This 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 attached Fact Sheet.
- S. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections V.B, VI.A.2.v, VI.C.4.a, and VI.C.4.b 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 Waste Discharge Requirements 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 of this Order.

THEREFORE, IT IS HEREBY ORDERED, that this Order supercedes Order No. R5-2005-0037 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 of 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 nuisance as defined in Section 13050 of the California Water Code.
- D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and 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 wastewater from sewage holding tanks into the treatment plant or collection system, without prior approval from the Executive Officer of the Central Valley Water Board, or his/her designee, is prohibited.

#### IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

##### A. Effluent Limitations – Discharge Point No. 001 (Cottonwood Creek)

##### 1. Final Effluent Limitations – Discharge Point No. 001 (Cottonwood Creek)

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001 for continuous and emergency discharges to Cottonwood Creek, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

**Table 6. Effluent Limitations – Discharge Point No. 001**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
<b>Conventional Pollutants</b>						
Flow	MGD	0.43 <sup>1</sup>	--	--	--	--
Biochemical Oxygen Demand, 5-day @ 20°C	mg/L	10	15	30	--	--
	lbs/day <sup>2</sup>	36	54	108	--	--
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day <sup>2</sup>	36	54	108	--	--
pH	standard units	--	--	--	6.5	8.5
<b>Priority Pollutants</b>						
Copper, Total Recoverable	ug/L	20.9	--	41.5	--	--
Zinc, Total Recoverable	ug/L	77.6	--	131.3	--	--
Cyanide	ug/L	20.7	--	51.5	--	--
Chlorodibromomethane	ug/L	1.53	--	3.80	--	--
Dichlorobromomethane	ug/L	8.62	--	29.6	--	--
Bis-2-ethylhexylphthalate	ug/L	3.57	--	9.56	--	--
<b>Non-Conventional Pollutants</b>						
Nitrate as N	mg/L	90	--	--	--	--
Ammonia Nitrogen, Total (as N)	mg/L	13.7	--	36.5	--	--
Total Coliform Organisms	MPN/100 mL	--	23 <sup>3</sup>	500	--	240 <sup>4</sup>
Chlorine, Total Residual	mg/L	--	0.011 <sup>5</sup>	0.019 <sup>6</sup>		

- 1 Average dry weather flow.
- 2 Based on a design flow of 0.43 MGD.
- 3 Applied as a 7-day median effluent limitation.
- 4 Effluent total coliform organisms are not to exceed 240 MPN/100mL more than once in any 30-day period.
- 5 Applied as a 4-day average effluent limitation.
- 6 Applied as a 1-hour average effluent limitation.

- b. **Percent Removal.** The average monthly percent removal of BOD<sub>5</sub> and TSS shall not be less than 85 percent.

- c. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:
  - i. 23 most probable number (MPN) per 100mL, as a 7-day median;
  - ii. 240 MPN/100mL, more than once in any 30-day period; and,
  - iii. 500 MPN/100mL, as a daily maximum.
  
- d. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted effluent shall be no less than:
  - i. 70%, minimum for any one bioassay; and
  - ii. 90%, median for any three consecutive bioassays.
  
- e. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:
  - i. 0.011 mg/L, as a 4-day average; and,
  - ii. 0.019 mg/L, as a 1-hour average.

**2. Interim Effluent Limitations [NOT APPLICABLE]**

**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 Cottonwood 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 ten 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:** Discharger shall not cause the following:

- a. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.
  - b. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time between 1 September and 31 May of each year.
  - c. The dissolved oxygen concentration to be reduced below 9.0 mg/L at any time between 1 June and 31 August of each year.
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, 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 concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15; and
  - g. Thiobencarb to be present in excess of 1.0 ug/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 maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses
13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.
14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
15. **Temperature.** The natural temperature to be increased by more than 5°F.
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.** The turbidity to increase as follows:
  - a. Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTU.
  - b. More than 1 NTU where natural turbidity is between 1 and 5 NTUs.
  - c. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
  - d. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
  - e. 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 or contribute to, in combination with other sources of the waste constituents, groundwater within influence of the Facility to contain:
  - a. Taste or odor-producing constituents, toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses;
  - b. Waste constituent concentrations in excess of water quality objectives or background water quality, whichever is greater; and
  - c. Waste constituent concentrations in excess of the concentrations specified below or background water quality, whichever is greater:

- i. total coliform organisms shall not exceed 2.2 MPN/100 mL over any 7-day period.

## VI. PROVISIONS

### A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions 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 Clean Water Act, 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. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.
- i. 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.

- j. Safeguard to electric power failure:
  - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
  - ii. Upon written request by the Central Valley Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
  - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.
- k. 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 VI.A.2.m.

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.

- I. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- m. 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.
- n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board and USEPA.
- o. 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.
- p. 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.
- q. All monitoring and analysis 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.

- r. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.
- s. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.
- t. 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.
- u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).
- v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone (530) 224-4845 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 Attachment D, Section V.E.1 [40 CFR 122.41(l)(6)(i)].

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

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

## **C. Special Provisions**

### **1. Reopener Provisions**

- a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- b. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including:

- 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.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.
- d. **Total Maximum Daily Loads (TMDLs).** This Order may be reopened, and appropriate effluent limitations, or other controls, prescribed, in order to implement any TMDLs.
- e. **Salinity Evaluation and Minimization Plan.** This Order requires the Discharger to prepare a Salinity Evaluation and Minimization Plan (SEMP). This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for salinity based on review and implementation of the SEMF.
- f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable constituents. 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 inorganic constituents. An acceptable WER can be used to adjust aquatic life-based water quality standards, including metals such as copper, and Basin Plan incorporated USEPA water quality standards for ammonia and aluminum. USEPA has also promulgated an objective for copper based on the Biotic Ligand Model (BLM) that can be used as the basis for a site-specific copper effluent limitations. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators and submits an approved report, this Order may be reopened to modify the effluent limitations for the applicable constituents.
- g. **Reasonable Potential for Constituents with Insufficient Information.** This Order may be reopened, and appropriate effluent limitations added, if results from the Monitoring and Reporting Program indicate that carbon tetrachloride, aldrin, beta-BHC, or gamma-BHC is present at concentrations that have the reasonable potential to cause or contribute to an exceedance of applicable water quality criteria or objectives.

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

- a. **Annual Performance Evaluation.** As discussed in the Fact Sheet, dilution and corresponding mixing zones have been granted for copper, cyanide, zinc, nitrate, bis-2-ethylhexylphthalate, ammonia, chlorodibromomethane, and dichlorobromomethane. In order to assure, at a minimum, current facility performance is maintained for these constituents, the Discharger is required to conduct an Annual Performance Evaluation on the removal efficiency of these constituents. In conducting this evaluation, Discharger shall determine, using appropriate statistical methods and a 99% confidence level, whether pollutant concentrations are increasing, decreasing, or exhibits no change in concentration. Discharger shall submit a work plan outlining the proposed methodology and statistical analysis to the Central Valley Water Board for approval no later than **6 months after date of adoption of this Order**. The Annual Performance Evaluation Report shall be submitted to the Central Valley Water Board **by 1 January, each year**.
- b. **Annual Best Practicable Treatment or Control (BPTC) Review.** As discussed in this Order, the Central Valley Water Board finds that:

BPTC for the control and removal of copper, zinc, and bis-2-ethylhexylphthalate is secondary treatment plus the use of the Facility's tertiary filters, effluent diffuser, and source control and minimization;

BPTC for the control and removal of cyanide, chlorodibromomethane, and dichlorobromomethane is secondary treatment plus the use of the Facility's tertiary filters, effluent diffuser, and automated flow/concentration-based chlorination/dechlorination system; and,

BPTC for the control and removal of ammonia and nitrate is secondary treatment plus the use of the Facility's nitrification and denitrification processes and capabilities, and effluent diffuser.

In order to ensure that BPTC is fully, and optimally implemented, the Discharger shall conduct an annual review of the treatment and control measures used to implement BPTC, to determine if any modifications, maintenance, or improvements are required to maintain BPTC performance. Such modifications, maintenance, or improvements may include maintenance of filters, effluent diffuser, or other treatment processes, calibration or fine-tuning of the chlorination/dechlorination system or nitrification and denitrification processes, or modification of the source control program. A report that includes the findings of the review, and any modifications, maintenance, or improvements that are required to fully implement BPTC shall be submitted to the Central Valley Water Board **by 1 January, each year**. The Discharger shall fully, and optimally implement BPTC at all times.

- c. **Salinity Evaluation and Minimization Plan (SEMP).** The Discharger shall prepare a Salinity Evaluation and Minimization Plan (SEMP) to identify sources of salinity in effluent from the Facility, and measures available to minimize the concentration and mass loading of salinity. The plan, including a proposed schedule to implement the identified minimization measures, shall be completed and submitted to the Regional Water Board within **1 year of the effective date of this Order** for approval by the Executive Officer. Following SEMP approval, the Discharger shall implement the applicable minimization measures according to the approved schedule.
- d. **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 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 exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.
- i. **Toxicity Reduction Evaluation (TRE) Work Plan. Within 6 months 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 guidance<sup>1</sup> and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.
- ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

---

<sup>1</sup> See Attachment F (Fact Sheet) Section VII.B.2.a. for a list of EPA guidance documents that must be considered in development of the TRE Workplan.

- iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is  $> 1 \text{ TUc}$  (where  $\text{TUc} = 100/\text{NOEC}$ ). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.
- iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14 days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a 6-week period (i.e., one test every 2 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 adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.
  - b) If the source(s) of the toxicity is easily identified (i.e., 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 initiate 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 laboratory of the test results 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 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 – Not Applicable**

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

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

- b. The Discharger shall operate the treatment system to insure that turbidity shall not exceed 2 NTU as a daily average; 5 NTU more than 5 percent of the time within a 24 hour period; and 10 NTU, at any time.

## 5. Special Provisions for Municipal Facilities (POTWs Only)

### a. Pretreatment Requirements – If Applicable

- i. The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or the U.S. Environmental Protection Agency (USEPA) may take enforcement actions against the Discharger as authorized by the CWA.
- ii. The Discharger shall enforce the Pretreatment Standards promulgated under sections 307(b), 307(c), and 307(d) of the Clean Water Act. The Discharger shall perform the pretreatment functions required by 40 CFR Part 403 including, but not limited to:
  - a) Adopting the legal authority required by 40 CFR 403.8(f)(1);
  - b) Enforcing the Pretreatment Standards of 40 CFR 403.5 and 403.6;
  - c) Implementing procedures to ensure compliance as required by 40 CFR 403.8(f)(2); and
  - d) Providing funding and personnel for implementation and enforcement of the pretreatment program as required by 40 CFR 403.8(f)(3).
- iii. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
  - a) Wastes which create a fire or explosion hazard in the treatment works;
  - b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
  - c) Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
  - d) Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the

treatment works, and subsequent treatment process upset and loss of treatment efficiency;

- e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Central Valley Water Board approves alternate temperature limits;
  - f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
  - g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and:
  - h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.
- iv. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:
- a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or:
  - b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

**b. Sludge/Biosolids Discharge Specifications**

- 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, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.
- 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 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 any

Groundwater Limitations specified in section V.B. 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 any Groundwater Limitations specified in section V.B.

- iv. The use and disposal 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.
- c. Biosolids Disposal Requirements**
- i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.
  - ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. EPA Regional Administrator at least **90 days** in advance of the change.
  - iii. The Discharger is encouraged to comply with the “Manual of Good Practice for Agricultural Land Application of Biosolids” developed by the California Water Environment Association.
- d. Biosolids Storage Requirements**
- i. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.
  - ii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
  - iii. Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.
  - iv. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate.

- e. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003 and any future revisions thereto. Order 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR.

Regardless of the coverage obtained under Order 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR 122.41(e)], report any non-compliance [40 CFR 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR 122.41(d)].

## 6. Other Special Provisions

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

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

## 7. Compliance Schedules [NOT APPLICABLE]

## VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

- A. **BOD<sub>5</sub> and TSS Effluent Limitations.** Compliance with the final effluent limitations for BOD<sub>5</sub> and TSS required in sections IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations IV.A.1.b for percent removal shall be calculated using the arithmetic mean of BOD<sub>5</sub> 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. Average Dry Weather Flow Effluent Limitations.** The average dry weather flow is intended to represent the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over 3 consecutive dry weather months (i.e., July, August, and September).
- C. Total Coliform Organisms Effluent Limitations.** 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 23 per 100 milliliters, the Discharger will be considered out of compliance.
- D. Total Residual Chlorine Effluent Limitations.** Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.
- Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive.
- E. Chronic Whole Effluent Toxicity Effluent Limitation.** Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitations contained in sections IV.A.1.d and IV.B.1.d of this Order for chronic whole effluent toxicity.
- F. Annual Average Effluent Limitations.** Annual average effluent constituent concentrations for determining compliance with the annual average effluent limitations for constituents such as iron, manganese, aluminum, and salinity shall be performed as the average value of each averaging period required in the Monitoring and Reporting Program. For example, if quarterly effluent monitoring is required, the annual average is the average of the four quarterly averages. Each quarterly average is the average of the verified results during that calendar quarter.

## ATTACHMENT A – DEFINITIONS

A

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

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

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

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

**Best Practicable Treatment or Control (BPTC):** BPTC is a requirement of State Water Resources Control Board Resolution 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(I). In general, an exceedance of a water quality objective in the Basin Plan constitutes “pollution”.

**Bioaccumulative** pollutants are 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.

**Biosolids** is sewage sludge that has been treated and tested and shown to be capable of being beneficially and legally used as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities as specified under 40 CFR Part 503.

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

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

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

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

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

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

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

**Enclosed Bays** 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** is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

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

**Inland Surface Waters** are all surface waters of the State that do not include the ocean,

enclosed bays, or estuaries.

**Instantaneous Maximum Effluent Limitation:** the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

**Instantaneous Minimum Effluent Limitation:** the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

**Maximum Daily Effluent Limitation (MDEL)** means 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** is 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)** 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 title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

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

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

**Ocean Waters** are 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 are substances for which degradation or decomposition in the environment is nonexistent or very slow.

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

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

**Reporting Level (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.

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

**Source of Drinking Water** is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

**Sewage Sludge** is the solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a municipal wastewater treatment facility. Sewage sludge includes solids removed or used during primary, secondary, or advanced wastewater treatment processes. Sewage sludge does not include grit or screening material generated during preliminary treatment of domestic sewage at a municipal wastewater treatment facility.

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

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

where:

x is the observed value;

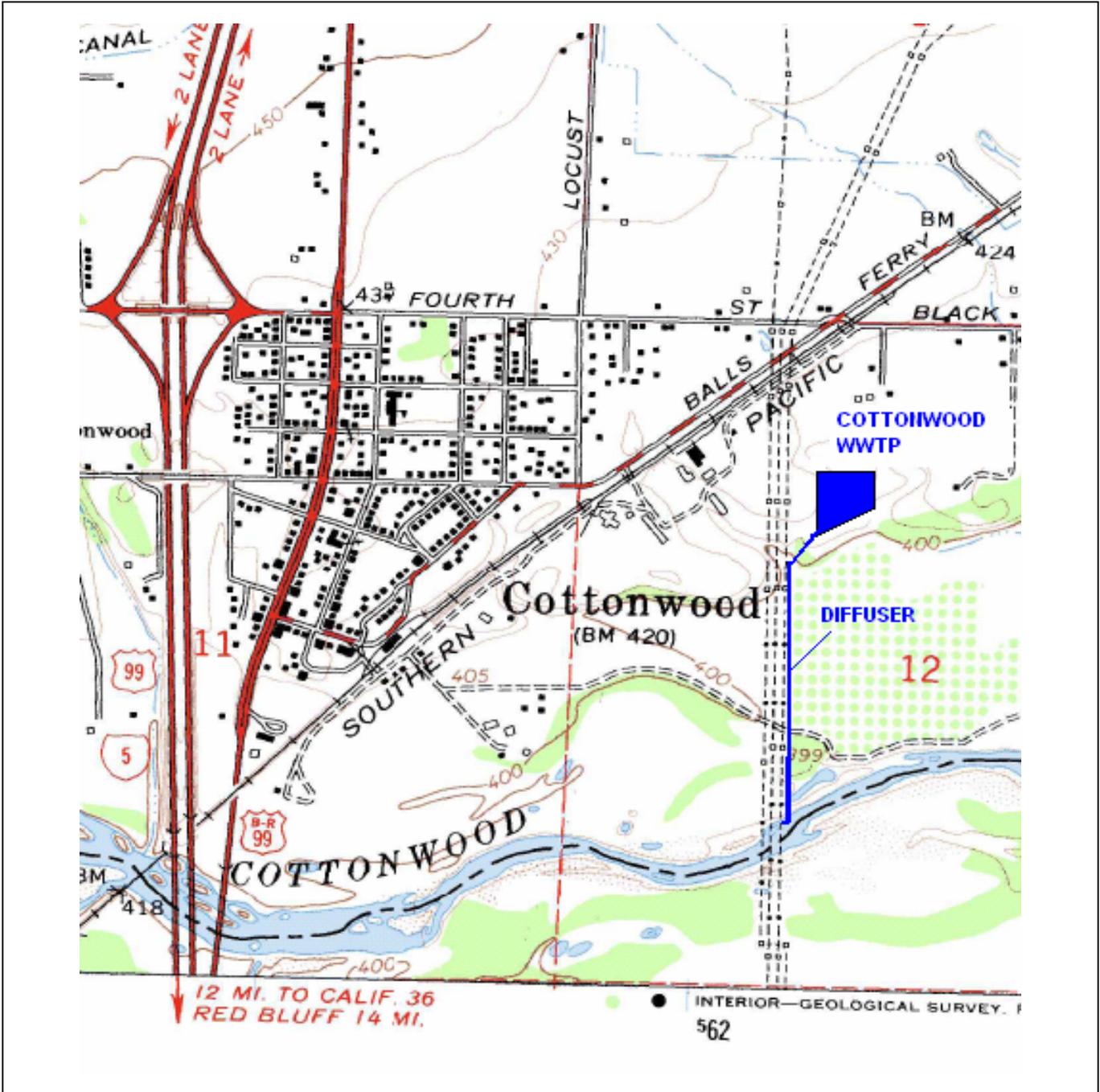
$\mu$  is the arithmetic mean of the observed values; and

n is the number of samples.

**Toxicity Reduction Evaluation (TRE)** 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**

**B**

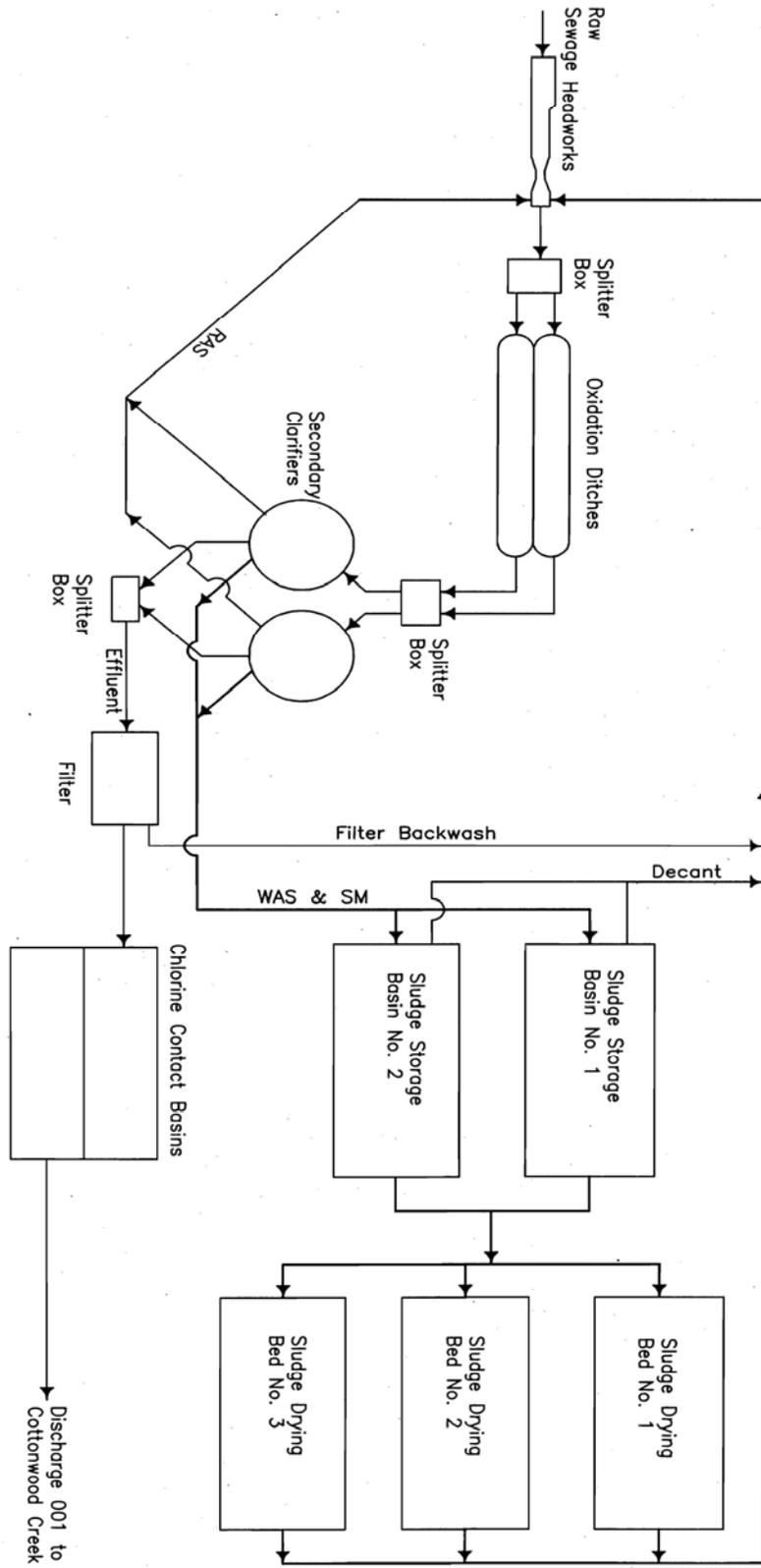


SITE LOCATION MAP

SHASTA COUNTY SERVICE AREA NO. 17  
WASTEWATER TREATMENT PLANT  
SHASTA COUNTY

### ATTACHMENT C – SHASTA COUNTY SERVICE AREA NO. 17 FLOW SCHEMATIC

C



## **ATTACHMENT D –STANDARD PROVISIONS**

**D**

### **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 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); Wat. Code, § 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 Water Code, 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 Water Code. (40 CFR 122.41(l)(3); 122.61.)

### III. STANDARD PROVISIONS – MONITORING

- A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 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); 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); Wat. Code, § 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 either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR 122.22(a)(3).)
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or 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 report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 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 General 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 Water Code, including, but not limited to, sections 13385, 13386, and 13387.

## **VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS**

### **A. Publicly-Owned Treatment Works (POTWs)**

All POTWs shall provide adequate notice to the Central Valley Water Board of the following (40 CFR 122.42(b)):

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

## ATTACHMENT E – MONITORING AND REPORTING PROGRAM

### Table of Contents

#### E

Attachment E – Monitoring and Reporting Program (MRP) .....	E-2
I. General Monitoring Provisions.....	E-2
II. Monitoring Locations .....	E-3
III. Influent Monitoring Requirements.....	E-3
A. Monitoring Location INF-001.....	E-3
IV. Effluent Monitoring Requirements .....	E-4
A. Monitoring Location EFF-001.....	E-4
V. Whole Effluent Toxicity Testing Requirements .....	E-6
VIII. Receiving Water Monitoring Requirements – Surface Water and Groundwater .....	E-9
A. Monitoring Locations RSW-001 through RSW-008.....	E-9
B. Underdrain Monitoring UND-001.....	E-12
IX. Other Monitoring Requirements.....	E-13
A. Biosolids .....	E-13
B. Municipal Water Supply .....	E-13
X. Reporting Requirements.....	E-14
A. General Monitoring and Reporting Requirements.....	E-14
B. Self Monitoring Reports (SMRs) .....	E-15
C. Discharge Monitoring Reports (DMRs) .....	E-17
D. Other Reports .....	E-18

### List of Tables

Table E-1. Monitoring Station Locations .....	E-3
Table E-2. Influent Monitoring.....	E-4
Table E-3. Effluent Monitoring .....	E-4
Table E-4. Chronic Toxicity Testing Dilution Series .....	E-8
Table E-7. Receiving Water Monitoring Requirements – Monitoring Location RSW-001 .....	E-9
Table E-8. Receiving Water Monitoring Requirements – Monitoring Location RSW-002 ....	E-10
Table E-9. Receiving Water Monitoring Requirements – Monitoring Location RSW-004 ....	E-11
Table E-10. Receiving Water Monitoring Requirements – Monitoring Location RSW-005 ..	E-11
Table E-11. Receiving Water Monitoring Requirements – Monitoring Location RSW-006 ..	E-11
Table E-12. Receiving Water Monitoring Requirements – Monitoring Location RSW-007 ..	E-12
Table E-13. Receiving Water Monitoring Requirements – Monitoring Location RSW-008 ..	E-12
Table E-13. Underdrain Monitoring Requirements .....	E-12
Table E-14. Municipal Water Supply Monitoring Requirements.....	E-13
Table E-15. Monitoring Periods and Reporting Schedule .....	E-16

## **ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)**

Title 40 of the Code of Federal Regulations section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Central Valley Regional Water Quality Control Board (Central Valley Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state 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. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the State Department of Public Health (DPH; formerly the Department of Health Services). 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, 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 must be kept in the laboratory and shall be available for inspection by Central Valley Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.
- C. All analyses shall be performed in a laboratory certified to perform such analyses by DPH. Laboratories that perform sample analyses shall be identified in all monitoring reports submitted to the Central Valley Water Board. The Discharger shall institute a Quality Assurance-Quality Control Program for any onsite field measurements such as pH, turbidity, temperature and residual chlorine. A manual containing the steps followed in this program must be kept onsite and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.
- D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary 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.

## II. MONITORING LOCATIONS

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

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

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	At the plant headworks prior to entering into treatment processes.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected after all treatment processes and prior to entering the diffuser at Cottonwood Creek.
--	RSW-001	Cottonwood Creek: 100 feet upstream of the diffuser
--	RSW-002	Cottonwood Creek: 100 feet downstream of the diffuser
--	RSW-003	Historic monitoring location used for a metals translator study.
--	RSW-004	Cottonwood Creek: 58 feet downstream of the diffuser (maximum concentration at edge of nitrate mixing zone)
--	RSW-005	Cottonwood Creek: 27 feet downstream of the diffuser (maximum concentration at edge of chlorodibromomethane mixing zone)
--	RSW-006	Cottonwood Creek: 158 feet downstream of the diffuser (maximum concentration at edge of ammonia, copper, cyanide, and zinc mixing zone)
--	RSW-007	Cottonwood Creek: 160 feet downstream of the diffuser (maximum concentration at edge of dichlorobromomethane mixing zone)
--	RSW-008	Cottonwood Creek: 4 feet downstream of the diffuser (maximum concentration at edge of bis-2-ethylhexylphthalate mixing zone)
--	BIO-001	A location where a representative sample of the biosolids can be collected.
--	UND-1	Underdrain system discharge
--	SPL-001	A location where a representative sample location for the municipal water supply can be collected. If the water supply is from more than one source, a weighted average should be calculated.

## III. INFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location INF-001

1. Samples shall be collected at approximately the same time as effluent samples. The Discharger shall monitor domestic influent at the headworks (INF-001) prior to entry into treatment processes as follows:

**Table E-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
<b>Conventional Pollutants</b>				
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite <sup>1</sup>	Weekly	2
	lbs/day	Calculate	Weekly	2
pH	standard units	Grab	1/Day	2
Total Suspended Solids	mg/L	24-hr Composite <sup>1</sup>	Weekly	2
	lbs/day	Calculate	Weekly	2
<b>Non-Conventional Pollutants</b>				
Electrical Conductivity @ 25°C	umhos/cm	Grab	Monthly	2
Total Dissolved Solids	mg/L	Grab	Monthly	2

<sup>1</sup> Composite samples shall be flow proportional.

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

**IV. EFFLUENT MONITORING REQUIREMENTS**

**A. Monitoring Location EFF-001**

1. The Discharger shall monitor treated effluent at Monitoring Location EFF-001 (for continuous and emergency discharges from Discharge Point No. 001) as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level.

**Table E-3. Effluent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
<b>Conventional Pollutants</b>				
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite <sup>1</sup>	1/Week	2
	lbs/day	Calculate	1/Week	2
pH	standard units	Meter	Continuous	2
Total Suspended Solids	mg/L	24-hr Composite <sup>1</sup>	1/Week	2
	lbs/day	Calculate	1/Week	2
<b>Priority Pollutants</b>				
Chlorodibromomethane	ug/L	Grab	1/Month	2,4
Dichlorobromomethane	ug/L	Grab	1/Month	2,4
Bis-2-ethylhexylphthalate	ug/L	Grab	1/Month	2,3,4
Chloroform	ug/L	Grab	1/Quarter	2,4
Bromoform	ug/L	Grab	1/Quarter	2,4
Carbon Tetrachloride	ug/L	Grab	1/Quarter	2,4
Aldrin	ug/L	Grab	1/Quarter	2,4
B-BHC	ug/L	Grab	1/Quarter	2,4

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
G-BHC	ug/L	Grab	1/Quarter	2,4
Copper, Total Recoverable	ug/L	Grab	1/Month	2,4
Zinc, Total Recoverable	ug/L	Grab	1/Month	2,4
Cyanide, Total Recoverable	ug/L	Grab	1/Month	2,4
Priority Pollutants	ug/L	24-hr Composite <sup>1,8</sup>	Twice during life of permit <sup>9</sup>	2,4,6
<b>Non-Conventional Pollutants</b>				
Hardness (as CaCO <sub>3</sub> )	mg/L	24-hr Composite <sup>1</sup>	1/Month	2
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/Month	2
Temperature	°F	Grab	1/Day	2
Dissolved Oxygen	mg/L	Grab	1/Week	2
Total Dissolved Solids	mg/L	Grab	1/Month	2
Turbidity	NTU	Meter	Continuous	2
Total Coliform Organisms	MPN/100 mL	Grab	1/Week	2
Chlorine, Total Residual	mg/L	Meter	Continuous	2,13
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month <sup>11,12</sup>	2
Nitrate Nitrogen, Total (as N)	mg/L	24-hr Composite <sup>1</sup>	1/Quarter	2
Aluminum	ug/L	Grab	1/Quarter	2
Standard Minerals <sup>14</sup>	ug/L	Grab	1/Quarter	2
Whole Effluent Toxicity (see Section V. below)	--	--	--	--

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<p><sup>1</sup> Composite samples shall be flow proportional.</p> <p><sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.</p> <p><sup>3</sup> 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.</p> <p><sup>4</sup> 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 Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.</p> <p><sup>5</sup> Reserved.</p> <p><sup>6</sup> Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA Method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.</p> <p><sup>7</sup> Reserved.</p> <p><sup>8</sup> Volatile constituents shall be sampled in accordance with 40 CFR Part 136.</p> <p><sup>9</sup> Monitoring is required one time each during the 3<sup>rd</sup> and 4<sup>th</sup> years of the permit. The Discharger is not required to conduct effluent monitoring for priority pollutants that have already been sampled in a given month, as required in Table E-3.</p> <p><sup>11</sup> Concurrent with whole effluent toxicity monitoring.</p> <p><sup>12</sup> pH and temperature shall be recorded at the time of ammonia sample collection.</p> <p><sup>13</sup> Total chlorine residual must be monitored with a method sensitive to and accurate at the level of 0.01 mg/L.</p> <p><sup>14</sup> Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e. cation/anion balance).</p>				

**V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS**

- A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:
1. Monitoring Frequency – The Discharger shall perform quarterly acute toxicity testing, concurrent with effluent ammonia sampling.
  2. Sample Types – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.
  3. Test Species – Test species shall be rainbow trout (*Oncorhynchus mykiss*).
  4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

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

**B. Chronic Toxicity Testing.** The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. Monitoring Frequency – The Discharger shall perform annual three species chronic toxicity testing.
2. Sample Types – Effluent samples shall be flow 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.
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. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002.*
6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. Dilutions – The chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below. If no toxic effects occur at 100% effluent, then the full dilution series is not required. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity.

**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 *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
    - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in Special Provisions VI. 2.a.iii.)
- 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 results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC<sub>50</sub>, 100/EC<sub>25</sub>, 100/IC<sub>25</sub>, and 100/IC<sub>50</sub>, as appropriate.
    - b. The statistical methods used to calculate endpoints;
    - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
    - d. The dates of sample collection and initiation of each toxicity test; and

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

Additionally, the monthly 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 with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations 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.

**VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER**

**A. Monitoring Locations RSW-001 through RSW-008**

1. The Discharger shall monitor Cottonwood Creek at RSW-001, RSW-002, RSW-004, RSW-005, RSW-006, RSW-007, and RSW-008 when discharging to Cottonwood Creek at Discharge Point No. 001, as follows. Monitoring at RSW-003 is not required in this Order however previous data have been collected at RSW-003 in the past.

**Table E-7. Receiving Water Monitoring Requirements – Monitoring Location RSW-001**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	--	Daily <sup>1</sup>	--
<b>Conventional Pollutants</b>				
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Week	<sup>2</sup>
pH	standard units	Grab	1/Week <sup>4</sup>	<sup>2</sup>
<b>Priority Pollutants</b>				
Copper, Total Recoverable	ug/L	Grab	1/Quarter	<sup>2</sup>

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Cyanide	ug/L	Grab	1/Quarter	<sup>2</sup>
Zinc, Total Recoverable	ug/L	Grab	1/Quarter	<sup>2</sup>
Chlorodibromomethane	ug/L	Grab	1/Quarter	<sup>2</sup>
Dichlorobromomethane	ug/L	Grab	1/Quarter	<sup>2</sup>
Bis-2-ethylhexylphthalate	ug/L	Grab	1/Quarter	<sup>2</sup>
Priority Pollutants	ug/L	Grab	Twice during life of permit <sup>3</sup>	<sup>2</sup>
<b>Non-Conventional Pollutants</b>				
Ammonia Nitrogen, Total (as N)	mg/L	Grab <sup>5</sup>	1/Quarter	<sup>2</sup>
Dissolved Oxygen	mg/L	Grab	1/Week	<sup>2</sup>
Electrical Conductivity@ 25°C	umhos/cm	Grab	1/Month	<sup>2</sup>
Aluminum	ug/L	Grab	1/Quarter	
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month	<sup>2</sup>
Temperature	°F	Grab	1/Month <sup>4</sup>	<sup>2</sup>
Turbidity	NTU	Grab	1/Week	<sup>2</sup>
Standard Minerals	ug/L	Grab	1/Year	<sup>2</sup>

<sup>1</sup> Flow to be obtained from USGS Gauging Station 11376000

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

<sup>3</sup> Priority pollutant monitoring is required once during the 3<sup>rd</sup> year and once during 4<sup>th</sup> year of the permit term.

<sup>4</sup> Temperature and pH shall be collected at the same time as the ammonia sample.

- The Discharger shall monitor Cottonwood Creek at RSW-002, when discharging to Cottonwood Creek at Discharge Point No. 001 as follows:

**Table E-8. Receiving Water Monitoring Requirements – Monitoring Location RSW-002**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Conventional Pollutants</b>				
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Week	<sup>1</sup>
pH	standard units	Grab	1/Week	<sup>1</sup>
<b>Non-Conventional Pollutants</b>				
Total Residual Chlorine			1/Week	<sup>1</sup>
Dissolved Oxygen	mg/L	Grab	1/Week	<sup>1</sup>
Electrical Conductivity@ 25°C	umhos/cm	Grab	1/Month	<sup>1</sup>
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month	<sup>1</sup>
Temperature	°F	Grab	1/Month	<sup>1</sup>
Turbidity	NTU	Grab	1/Week	<sup>1</sup>

<sup>1</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

- The Discharger shall monitor the maximum concentration at the downstream edge of the nitrate mixing zone in Cottonwood Creek at RSW-004, when discharging to Cottonwood Creek at Discharge Point No. 001, as follows:

**Table E-9. Receiving Water Monitoring Requirements – Monitoring Location RSW-004**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrate (as N)	mg/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>

<sup>1</sup> Samples shall be collected during low flow conditions (September of each year)

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

- The Discharger shall monitor the maximum concentration at the downstream edge of the chlorodibromomethane, and bis-2-ethylhexylphthalate mixing zone in Cottonwood Creek at RSW-005, when discharging to Cottonwood Creek at Discharge Point No. 001, as follows:

**Table E-10. Receiving Water Monitoring Requirements – Monitoring Location RSW-005**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Priority Pollutants</b>				
Bis-2-ethylhexylphthalate	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>
Chlorodibromomethane	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>

<sup>1</sup> Samples shall be collected during low flow conditions (September of each year).

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

- The Discharger shall monitor the maximum concentration at the downstream edge of the ammonia, copper, cyanide, and zinc mixing zone in Cottonwood Creek at RSW-006, when discharging to Cottonwood Creek at Discharge Point No. 001, as follows:

**Table E-11. Receiving Water Monitoring Requirements – Monitoring Location RSW-006**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Conventional Pollutants</b>				
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>
pH	standard units	Grab	1/Year <sup>1</sup>	<sup>2</sup>
<b>Priority Pollutants</b>				
Copper, Dissolved	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>
Cyanide	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>
Zinc, Dissolved	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>
<b>Non-Conventional Pollutants</b>				
Temperature	°F	Grab	1/Year <sup>1</sup>	<sup>2</sup>
Ammonia Nitrogen, Total (as N)	mg/L	Grab <sup>3</sup>	1/Year <sup>1</sup>	<sup>2</sup>

<sup>1</sup> Samples shall be collected during low flow conditions (September of each year)

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

<sup>3</sup> Temperature and pH shall be collected at the same time as the ammonia sample.

- The Discharger shall monitor the maximum concentration at the downstream edge of the dichlorobromomethane mixing zone in Cottonwood Creek at RSW-007, when discharging to Cottonwood Creek at Discharge Point No. 001, as follows:

**Table E-12. Receiving Water Monitoring Requirements – Monitoring Location RSW-007**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Priority Pollutants</b>				
Dichlorobromomethane	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>

<sup>1</sup> Samples shall be collected during low flow conditions (September of each year).

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

7. The Discharger shall monitor the maximum concentration at the downstream edge of the bis-2-ethylhexylphthalate mixing zone in Cottonwood Creek at RSW-008, when discharging to Cottonwood Creek at Discharge Point No. 001, as follows:

**Table E-13. Receiving Water Monitoring Requirements – Monitoring Location RSW-008**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Priority Pollutants</b>				
Bis-2-ethylhexylphthalate	ug/L	Grab	1/Year <sup>1</sup>	<sup>2</sup>

<sup>1</sup> Samples shall be collected during low flow conditions (September of each year).

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

In conducting the receiving water sampling when discharging to Cottonwood Creek at Discharge Point No. 001, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-008. Attention shall be given to the presence or absence of:

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

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

**B. Underdrain Monitoring UND-001**

1. Underdrain monitoring at UND-001 shall be conducted as follows:

**Table E-13. Underdrain Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPM	Calculated	1/Week	--
Total and Fecal Coliform Organisms	MPN/100 mL	Grab	1/Month	<sup>2</sup>

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

<sup>1</sup> When discharging. If the detected Fecal Coliform concentration exceeds 200 MPN/100mL, then the monitoring frequency shall be increased to weekly, until the Fecal Coliform concentration falls below 200 MPN/100mL for 4 consecutive weekly measurements, or the Executive Officer of the Central Valley Water Board authorizes an alternate sampling program.

<sup>2</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

**IX. OTHER MONITORING REQUIREMENTS**

**A. Biosolids**

**1. Monitoring Location BIO-001**

- a. A composite sample of biosolids shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).
- b. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of biosolids quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.
- c. Upon removal of biosolids, the Discharger shall submit characterization of biosolids quality, including sludge percent solids and the most recent quantitative results of chemical analysis for the priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols). In addition to USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, suggested methods for analysis of biosolids are provided in USEPA publications titled "*Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*" and "*Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*". Recommended analytical holding times for biosolids samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available.

**B. Municipal Water Supply**

**1. Monitoring Location SPL-001**

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

**Table E-14. Municipal Water Supply Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency <sup>1</sup>	Required Analytical Test Method
Standard Minerals <sup>2</sup>	ug/L	--	1/Year	<sup>3</sup>

Parameter	Units	Sample Type	Minimum Sampling Frequency <sup>1</sup>	Required Analytical Test Method
Electrical Conductivity @ 25°C	umhos/cm	--	1/Year	3
Hardness (as CaCO <sub>3</sub> )	mg/L		1/Year	3
Copper, Total Recoverable	ug/L		1/Year	3
Zinc, Total Recoverable	ug/L		1/Year	3
Total Dissolved Solids	mg/L	--	1/Year	3

<sup>1</sup> If the water supply is from more than one source, the results shall be reported as a weighted average and include copies of supporting calculations. Alternatively, the Discharger may composite individual grab samples on a flow-weighted basis from multiple locations to represent the water supply within the service area. Compositing samples must be taken in accordance with the sample handling and preservation requirements specified in 40 CFR Part 136.

<sup>2</sup> Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

<sup>3</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

## X. REPORTING REQUIREMENTS

### A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** – Not Applicable
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.
5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (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 RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ 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 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 , AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
  - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

## **B. Self Monitoring Reports (SMRs)**

1. At any time during the term of this permit, the State or Central Valley Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board’s California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
2. Monitoring results shall be submitted to the Central Valley Water Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.
4. 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.
5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.
6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.
7. SMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board  
 Central Valley Region, Redding Office  
 415 Knollcrest Drive, Suite 100  
 Redding, CA 96002

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

**Table E-15. Monitoring Periods and Reporting Schedule**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	First day of second calendar month following month of sampling
1/Week	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	First day of second calendar month following month of sampling
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 <sup>st</sup> day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
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	January 1 through December 31	1 February

**C. Discharge Monitoring Reports (DMRs)**

- As described in Section X.B.1 above, at any time during the term of this permit, the State or Central Valley Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.
- DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

Standard Mail	FedEx/UPS/ Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 <sup>th</sup> Floor Sacramento, CA 95814

- All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated cannot be accepted unless they follow the exact same format as EPA form 3320-1.

## D. Other Reports

1. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.
2. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, 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.
3. **Annual Operations Report.** By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
  - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
  - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
  - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
  - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
  - e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

4. **Annual Pretreatment Reporting Requirements.** If applicable, the Discharger shall submit annually a report to the Central Valley Water Board, with copies to USEPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

An annual report shall be submitted by **28 February** and include at least the following items:

- a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under Section 307(a) of the CWA which are known or suspected to be discharged by industrial users.

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

- b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by industrial users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.
- c. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.
- d. An updated list of the Discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which

categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

- i. complied with baseline monitoring report requirements (where applicable);
- ii. consistently achieved compliance;
- iii. inconsistently achieved compliance;
- iv. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
- v. complied with schedule to achieve compliance (include the date final compliance is required);
- vi. did not achieve compliance and not on a compliance schedule; and
- vii. compliance status unknown.

A report describing the compliance status of each industrial user characterized by the descriptions in items iii. through vii. above shall be submitted for each calendar quarter **within 21 days of the end of the quarter**. The report shall identify the specific compliance status of each such industrial user and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report. This quarterly reporting requirement shall commence upon issuance of this Order.

- e. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the industrial users. The summary shall include:
  - i. the names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
  - ii. the conclusions or results from the inspection or sampling of each industrial user.
- f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:
  - i. Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.

- ii. Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - iii. Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - iv. Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - v. Assessment of monetary penalties. For each industrial user identify the amount of the penalties.
  - vi. Restriction of flow to the POTW.
  - vii. Disconnection from discharge to the POTW.
- g. A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.
- h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

Duplicate signed copies of these Pretreatment Program reports shall be submitted to the Central Valley Water Board and the:

State Water Resources Control Board  
Division of Water Quality  
1001 I Street or P.O. Box 100  
Sacramento, CA 95812

and the

Regional Administrator  
U.S. Environmental Protection Agency W-5  
75 Hawthorne Street  
San Francisco, CA 94105

**ATTACHMENT F – FACT SHEET**

**Table of Contents**

**F**

Attachment F – Fact Sheet ..... F-3

I. Permit Information ..... F-3

II. Facility Description ..... F-4

    A. Description of Wastewater and Biosolids Treatment or Controls ..... F-4

    B. Discharge Points and Receiving Waters..... F-4

    C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data ..... F-5

    D. Compliance Summary..... F-5

    E. Planned Changes ..... F-6

III. Applicable Plans, Policies, and Regulations ..... F-6

    A. Legal Authority ..... F-7

    B. California Environmental Quality Act (CEQA) ..... F-7

    C. State and Federal Regulations, Policies, and Plans ..... F-7

    D. Impaired Water Bodies on CWA 303(d) List ..... F-10

    E. Other Plans, Polices and Regulations..... F-10

IV. Rationale For Effluent Limitations and Discharge Specifications..... F-11

    A. Discharge Prohibitions ..... F-13

    B. Technology-Based Effluent Limitations..... F-13

        1. Scope and Authority ..... F-13

        2. Applicable Technology-Based Effluent Limitations ..... F-13

    C. Water Quality-Based Effluent Limitations (WQBELs)..... F-15

        1. Scope and Authority ..... F-15

        2. Applicable Beneficial Uses and Water Quality Criteria and Objectives..... F-15

        3. Determining the Need for WQBELs ..... F-22

        4. WQBEL Calculations ..... F-34

        5. Whole Effluent Toxicity (WET) ..... F-39

    D. Final Effluent Limitations ..... F-42

        1. Mass-based Effluent Limitations..... F-42

        2. Averaging Periods for Effluent Limitations..... F-43

        3. Satisfaction of Anti-Backsliding Requirements..... F-43

        4. Satisfaction of Antidegradation Policy..... F-44

    E. Interim Effluent Limitations [NOT APPLICABLE] ..... F-47

    F. Land Discharge Specifications [NOT APPLICABLE] ..... F-47

    G. Reclamation Specifications [NOT APPLICABLE]..... F-47

V. Rationale for Receiving Water Limitations ..... F-47

    A. Surface Water ..... F-48

    B. Groundwater [NOT APPLICABLE]..... F-51

VI. Rationale for Monitoring and Reporting Requirements ..... F-51

    A. Influent Monitoring ..... F-52

    B. Effluent Monitoring..... F-52

    C. Whole Effluent Toxicity Testing Requirements ..... F-53

    D. Receiving Water Monitoring..... F-53

        1. Surface Water..... F-53

        2. Groundwater [NOT REQUIRED]..... F-54

E. Other Monitoring Requirements .....	F-54
VII. Rationale for Provisions .....	F-55
A. Standard Provisions .....	F-55
B. Special Provisions .....	F-55
1. Reopener Provisions .....	F-55
2. Special Studies and Additional Monitoring Requirements .....	F-56
3. Best Management Practices and Pollution Prevention – Not Applicable. ....	F-61
4. Construction, Operation, and Maintenance Specifications .....	F-61
5. Special Provisions for Municipal Facilities (POTWs Only) .....	F-61
6. Other Special Provisions .....	F-61
7. Compliance Schedules – Not Applicable. ....	F-62
VIII. Public Participation .....	F-62
A. Notification of Interested Parties .....	F-62
B. Written Comments .....	F-62
C. Public Hearing .....	F-62
D. Waste Discharge Requirements Petitions .....	F-63
E. Information and Copying .....	F-63
F. Register of Interested Persons .....	F-63
G. Additional Information .....	F-63

**List of Tables**

Table F-1. Facility Information .....	F-3
Table F-2. Historic Effluent Limitations and Monitoring Data .....	F-5
Table F-3. Summary of Effluent Limitation Exceedances .....	F-6
Table F-4. Summary of Technology-based Effluent Limitations .....	F-14
Table F-6. Summary of Granted Dilution Credit .....	F-22
Table F-7. Salinity Water Quality Criteria/Objectives .....	F-32
Table F-8. WQBEL Calculations for Ammonia .....	F-36
Table F-9. WQBEL Calculations for Chlorodibromomethane .....	F-36
Table F-10. WQBEL Calculations for Copper .....	F-36
Table F-11. WQBEL Calculations for Cyanide .....	F-37
Table F-12. WQBEL Calculations for Dichlorobromomethane .....	F-37
Table F-13. WQBEL Calculations for Bis-2-ethylhexylphthalate .....	F-37
Table F-14. WQBEL Calculations for Zinc .....	F-38
Table F-15. Summary of Water Quality-based Effluent Limitations for Discharge Point No. 001 (Cottonwood Creek) .....	F-38
Table F-16. Acute Toxicity, 96 hr % Survival, Salmonids in 100% Effluent .....	F-40
Table F-17. Chronic Toxicity, Whole Effluent Data Summary .....	F-41
Table F-18. Antidegradation Analysis, Alternative Controls Summary .....	F-44
Table F-19. Summary of Final Effluent Limitations for Discharge Point No. 001 .....	F-46

## ATTACHMENT F – FACT SHEET

As described 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**

<b>WDID</b>	5A450001005
<b>Discharger</b>	Shasta County Service Area No. 17
<b>Name of Facility</b>	Cottonwood Wastewater Treatment Plant
<b>Facility Address</b>	3425 Live Oak Road
	Cottonwood, CA 96022
	Shasta County
<b>Facility Contact, Title and Phone</b>	Randy Gillichbauer, Utilities Superintendent, (530) 347-0431
<b>Authorized Person to Sign and Submit Reports</b>	Randy Gillichbauer, Utilities Superintendent, (530) 347-0431
<b>Mailing Address</b>	1855 Placer Street, Redding, CA 96001
<b>Billing Address</b>	Same as Mailing Address
<b>Type of Facility</b>	Publicly Owned Treatment Works (POTW)
<b>Major or Minor Facility</b>	Minor
<b>Threat to Water Quality</b>	1
<b>Complexity</b>	B
<b>Pretreatment Program</b>	N
<b>Reclamation Requirements</b>	None
<b>Facility Permitted Flow</b>	0.43 million gallons per day (MGD)
<b>Facility Design Flow</b>	0.43 MGD
<b>Watershed</b>	Lower Cottonwood Hydrologic Sub Area No. 508.20
<b>Receiving Water</b>	Cottonwood Creek tributary to the Sacramento River
<b>Receiving Water Type</b>	Inland surface water

- A.** The Shasta County Service Area (CSA) No. 17 (hereinafter Discharger) is the owner and operator of the Cottonwood Wastewater Treatment Plant (hereinafter Facility), a POTW. The Shasta County Department of Public Works provides oversight and management of the CSA.

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 Cottonwood Creek, a water of the United States, and is currently regulated by Order No. R5-2005-0037 which was adopted on 17 March 2005 and expired on 1 March 2010. The terms and conditions of the Order No. R5-2005-0037 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 complete report of waste discharge (ROWD) and application for renewal of its WDRs and NPDES permit on 9 September 2009. The Central Valley Water Board deemed the ROWD complete on 25 September 2009.

## **II. FACILITY DESCRIPTION**

The Discharger provides sewerage service for the community of Cottonwood, located approximately 15 miles south of the city of Redding, along Interstate 5. The Facility serves approximately 1,100 residences and small commercial customers. The design average dry weather flow capacity of the Facility is 0.43 MGD.

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

The treatment system at the Facility consists of a headworks with bar screen and Parshall flume with ultrasonic level sensor; two, parallel oxidation ditches with aerators; two, parallel secondary clarifiers with skimmers; traveling-bridge sand filter unit; chlorine disinfection with chlorine gas; serpentine chlorine contact chamber; dechlorination by addition of sulfur dioxide; an outfall line and diffuser to Cottonwood Creek; a northern 4.3 acre-feet aerated sludge setting basin, a southern 0.63 acre-feet aerated sludge settling basin; and four, sludge/sand drying beds. After being processed at the Facility, biosolids are characterized and disposed at appropriate landfill facilities.

### **B. Discharge Points and Receiving Waters**

1. The Facility is located in Section 22, T29N, R4W, MDB&M, as shown in Attachment B, a part of this Order.
2. Currently, treated municipal and industrial wastewater is discharged from Discharge Point No. 001 to Cottonwood Creek, a water of the United States, at a point Latitude 40° 22' 40" and Longitude 122° 16' 15". Cottonwood Creek is tributary to the Sacramento River approximately 4.5 miles downstream of the discharge point.

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

Effluent limitations contained in Order No. R5-2005-0037 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2005-0037 are as follows:

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

Parameter	Units	Effluent Limitation			Monitoring Data	
		Avg. Monthly	Avg. Weekly	Max. Daily	Highest Avg. Monthly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	7.5	9
	lbs/day <sup>1</sup>	36	54	108	28.8	62
	% Removal	85	--	--	99 avg	99 avg
Total Suspended Solids	mg/L	10	15	30	9.2	35
	lbs/day	36	54	108	33	97
	% Removal	85	--	--	97 avg	99 avg
Settleable Solids	mL/L	0.1	--	0.2	<0.1 <sup>2</sup>	<0.1 <sup>2</sup>
Total Coliform Organisms	MPN/100 mL	240 <sup>3</sup>	23 <sup>3</sup>	500 <sup>3</sup>	68	488
Copper (Total Recoverable)	ug/L	<sup>4,5</sup>	--	<sup>4,5</sup>	--	--
	ug/L	--	--	37 <sup>8</sup>	39.9	39.9
Zinc (Total Recoverable)	ug/L	<sup>4,6</sup>	--	<sup>4,6</sup>	--	--
	ug/L	--	--	162 <sup>8</sup>	128	128
pH	standard units	--	--	6.0 – 9.0	--	5.7 – 8.0
Average Dry Weather Flow	MGD	0.43	--	--	0.36	0.63
Acute Toxicity	% Survival	<sup>9</sup>	--	70%-90%	--	90% (lowest)
Chlorine, Total Residual	mg/L	0.02 <sup>10</sup>	0.01 <sup>10</sup>	--	<0.1	<0.1

<sup>1</sup> Based on a design flow of 0.43 MGD.

<sup>2</sup> One time exceedance of 5.7 mL/L max. Avg <0.1 mL/L.

<sup>3</sup> Shall not exceed 23 MPN/100mL as a 7-day median, 240 MPN/100mL more than once in a 30-day period, and 500 MPN/100mL as a daily maximum.

<sup>4</sup> Final effluent limitation effective 1 March 2010.

<sup>5</sup> Floating effluent limitations calculated in accordance with Attachment C of Order No. R5-2005-0037.

<sup>6</sup> Floating effluent limitations calculated in accordance with Attachment D of Order No. R5-2005-0037.

<sup>7</sup> Using the value, in mg/L, determined from Attachment C or D of Order No. R5-2005-0037 as appropriate, calculate lbs/day using the formula: z mg/L x 8.345 x 0.43 MGD = y lbs/day.

<sup>8</sup> Interim effluent limitation effective until 1 March 2010.

<sup>9</sup> 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 or more consecutive bioassays, 90%.

<sup>10</sup> 0.02 is hourly average limitation, 0.01 is 4-Day average limitation.

### D. Compliance Summary

On 9 September 2009 the Discharger was issued a draft Record of Violations (ROV) for comment. The draft ROV included a detailed summary of reported violations and resulting mandatory minimum penalties. A total of 17 violations were reported by the

Discharger in monthly DMRs received from September 2005 through February 2009. Nearly all of the violations were for effluent total coliform concentrations exceeding effluent limits. Central Valley Water Board staff is considering written comments provided by the Discharger regarding the violations. The Discharger is currently completing installation of automated chlorination/dechlorination controls and real-time chlorine residual analyzers. These improvements are expected to provide better control and monitoring of the disinfection process and result in marked improvement in the Facility's ability to comply with the total coliform effluent limits. A summary of effluent limitation exceedances is provided in Table F-3 below.

**Table F-3. Summary of Effluent Limitation Exceedances**

Date Range	Parameter	No. of Exceedances	Effluent Limit	Maximum Exceedance Value
20 December 2005 through 17 February 2009	Total Coliform Organisms 7-Day Median	12	23 MPN/100mL	248 MPN/100mL
15 February 2007	Total Coliform Monthly Maximum	1	420 MPN/100mL	488 MPN/100mL
14 August 2007	pH	1	Not <6 or >9	5.7
27 September 2005	Interim Zinc MDEL	1	162 ug/L	170 ug/L
30 January 2009	Interim Copper MDEL	1	37 ug/L	39.9 ug/L

**E. Planned Changes**

1. The Discharger is currently completing the installation of the required dosing control systems for the chlorination/dechlorination process at the treatment plant. Controls will be automatically operated based on flow and/or concentration.
2. The Discharger is currently completing the installation of electronic, real-time residual chlorine analyzers for the chlorination/dechlorination processes. The devices will continuously measure and record the chlorine residual and automatically notify the treatment plant operator of problems and potential effluent violations. The devices will have the sensitivity and accuracy to demonstrate compliance with effluent limits for chlorine residual contained in this Order.
3. The Discharger has completed a mixing zone/dilution study, associated biological assessment, and complete antidegradation analysis. The California Department of Fish and Game (DFG) was consulted during the mixing zone/dilution study and biological evaluation. This Order allows a mixing zone/ dilution credit for certain pollutants present in the discharge.

**III. APPLICABLE PLANS, POLICIES, AND REGULATIONS**

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

## A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

## B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

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

1. **Water Quality Control Plans.** The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised September 2009), for the Sacramento and San Joaquin River Basins* 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. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Central Valley Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of Cottonwood Creek, downstream of the discharge, are municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); other non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); cold migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); and wildlife habitat (WILD). Potential beneficial uses have been identified as industrial process supply (PROC); industrial service supply (IND), and hydropower generation (POW).

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

The federal CWA section 101(a)(2), states: “*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*” Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 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.*

This Order contains effluent limitations requiring tertiary level of treatment, or equivalent, which is necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has considered the factors listed in CWC section 13241 in establishing these requirements, as discussed in more detail in the Fact Sheet, Attachment F, IV.C.3.v.

2. **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 water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. 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 Board Resolution 68-16.
3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.
4. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a), California Water Code, requires that *"the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective"*.

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to

cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to CWC section 13263.6(a).

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

5. **Storm Water Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates certain storm water discharges from wastewater treatment facilities. However, wastewater treatment plants with design flows of less than one million gallons per day (< 1MGD) are not required to obtain an NPDES permit for storm water discharges. The design flow for Cottonwood Wastewater Treatment Plant is 0.43 MGD. Therefore, the Discharger is not required to obtain coverage under the State Water Board's Industrial Stormwater General Permit (Order No. 97-03-DWQ).
6. **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 limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
7. **Water Reuse Policy.** The Basin Plan's Water Reuse Policy states, "*The Regional Water board encourages the reclamation and reuse of wastewater...and requires as part of a Report of Waste Discharge an evaluation of reuse and land disposal options as alternative disposal methods. Reuse options should include consideration of the following, where appropriate, based on the quality of the wastewater and the required quality for the specific reuses: industrial and municipal supply, crop irrigation, landscape irrigation, ground water recharge, and wetland restoration.*" The purpose of the Water Reuse Policy is to evaluate alternative methods of disposal to prevent unnecessary discharges to surface water.

In December 2009 the Discharger submitted a complete antidegradation analysis to show that the proposed mixing zones/dilution credits satisfy requirements of State Water Board Resolution 68-16. As part of the antidegradation analysis, the Discharger evaluated a number of alternatives to directly discharging effluent to Cottonwood Creek. Some of the alternatives evaluated include: zero discharge, seasonal discharge, and flow restricted discharge. The antidegradation analysis alternatives assessment concludes that, at this time, it is not cost effective for the Discharger to expand its effluent storage capacity, and recommends continuance of the surface water discharge.

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

1. Under Section 303(d) of the 1972 Clean Water Act, 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 30 November 2006 USEPA gave final approval to California's 2006 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 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" Cottonwood Creek is tributary to the Sacramento River. The 2006 CWA section 303(d) listing includes the Sacramento River from Keswick Dam to Cottonwood Creek (upstream of the confluence) and the Sacramento River from Cottonwood Creek to Red Bluff (downstream of the confluence). Both segments of the Sacramento River are listed for "unknown toxicity" due to an "unknown source". Proposed TMDL completion date for both segments is 2019.
2. **Total Maximum Daily Loads (TMDL).** USEPA requires the Central Valley Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. The listing for unknown toxicity has a proposed TMDL completion date of 2019. This Order contains a reopener provision to modify permit requirements, as necessary, to implement any changes to the TMDL.

## E. Other Plans, Policies and Regulations

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

### **Sludge Settling Basins.**

The Facility includes two, aerated sludge settling basins (SSBs). The SSBs are aerated ponds that provide biological and physical treatment to sludge produced during the primary and secondary treatment processes. The SSBs are underlain by engineered liner systems consisting of a combination of compacted clay, asphalt, and concrete. Furthermore, an underdrain system collects shallow groundwater from under the Facility to ensure groundwater is adequately separated from the bottoms of the treatment units. Therefore, it is reasonable to conclude that operation of the SSBs does not have the potential to cause an exceedance of applicable water quality objectives in groundwater. Thus, the discharges to the SSBs are in compliance with the applicable water quality control plan. Monitoring of the sludge and liquid contained in the SSBs indicates that the waste does not need to be managed as a hazardous waste. Based on these findings the SSBs are exempt from the requirements of Title 27 CCR, pursuant to either Title 27 CCR section 20090(a) or section (b).

### **Sludge Drying Beds.**

The Facility includes sludge drying beds. The sludge drying beds are a sludge treatment process that dewater the sludge prior to final disposal. The sludge drying beds are underlain by engineered liner systems consisting of concrete with a drain system and sump to collect and return percolating liquid to the headworks. The drain system and sump ensure that there is no hydraulic pressure on the concrete liner. Furthermore, an underdrain system collects shallow groundwater from under the Facility to ensure groundwater is adequately separated from the bottoms of the treatment units. Therefore, it is reasonable to conclude that operation of the sludge drying beds does not have the potential to cause an exceedance of applicable water quality objectives in groundwater. Thus, the discharges to the sludge drying beds are in compliance with the applicable water quality control plan. Monitoring of the sludge and liquid contained in the sludge drying beds indicates that the waste does not need to be managed as a hazardous waste. Based on these findings the sludge drying beds are exempt from the requirements of Title 27 CCR, pursuant to either Title 27 CCR section 20090(a) or section (b).

## **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 Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

The Federal 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 discharges 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: 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 water quality-based effluent limitations (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 Central Valley Water Board’s Basin Plan at page IV-17.00, contains an implementation policy (“Policy for Application of Water Quality Objectives”) that specifies that the Central Valley Water Board “*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*” This Policy complies with 40 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 contains a narrative objective requiring that: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*” (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. 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 Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs.

## A. Discharge Prohibitions

1. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Central Valley Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.
2. The discharge of effluent at a location or in a manner different from that described in the Findings, is prohibited.
3. Discharge of materials, other than storm water, that are not otherwise permitted by this Order to surface waters or surface water drainage courses, is prohibited.
4. Discharge of wastewater from sewage holding tanks into the treatment plant or collection system, without prior approval from the Executive Officer of the Central Valley Water Board, or his/her designee, is prohibited.

## B. Technology-Based Effluent Limitations

### 1. Scope and Authority

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

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

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), and pH.

### 2. Applicable Technology-Based Effluent Limitations

- a. **BOD<sub>5</sub> and TSS.** Federal Regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD<sub>5</sub> and TSS. The Central Valley Water Board has determined that tertiary treatment (treatment beyond secondary) is necessary to protect the

beneficial uses of the receiving stream, and the final effluent limitations for BOD<sub>5</sub> and TSS are based on the technical capability of the tertiary process. BOD<sub>5</sub> is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The secondary and tertiary treatment standards for BOD<sub>5</sub> and TSS are indicators of the effectiveness of the treatment processes. The principal design parameter for wastewater treatment plants is the daily BOD<sub>5</sub> and TSS loading rates and the corresponding removal rate of the system. In applying 40 CFR Part 133 for weekly and monthly average BOD<sub>5</sub> and TSS limitations, the application of tertiary treatment processes results in the ability to achieve lower levels for BOD<sub>5</sub> and TSS than the secondary standards currently prescribed; therefore, consistent with Order No. 5-01-122, this Order includes 30-day average BOD<sub>5</sub> and TSS limitations of 10 mg/L, 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 BOD<sub>5</sub> and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. See Table F-4 for final technology-based effluent limitations required by this Order. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD<sub>5</sub> and TSS must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD<sub>5</sub> and TSS over each calendar month.

- b. **pH.** Federal Regulations, 40 CFR Part 133, also establish technology-based effluent limitations for pH. The secondary treatment standards require the pH of the effluent to be no lower than 6.0 and no greater than 9.0 standard units.
- c. **Flow.** The Facility is designed to provide a tertiary level of treatment for up to a design average dry weather flow of 0.43 MGD. Therefore, this Order contains an average dry weather flow effluent limit of 0.43 MGD.

**Summary of Technology-based Effluent Limitations  
 Discharge Point No. 001**

**Table F-4. Summary of Technology-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 <sup>1</sup>	36	54	108	--	--
	% Removal	85	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day <sup>1</sup>	36	54	108	--	--
	% Removal	85	--	--	--	--
pH	standard units	--	--	--	6.0	9.0
Flow	MGD	0.43 <sup>2</sup>	--	--	--	--

<sup>1</sup> Based on a design flow of 0.43 MGD.

<sup>2</sup> Average dry weather flow.

## C. Water Quality-Based Effluent Limitations (WQBELs)

### 1. Scope and Authority

As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. 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

a. **Receiving Water.** Currently, treated municipal and industrial wastewater is discharged from Discharge Point No. 001 to Cottonwood Creek, which is tributary to the Sacramento River approximately 4.5 miles downstream of the discharge point. The beneficial uses of Cottonwood Creek and the Sacramento River are described above in Section III.C.1 of this Fact Sheet.

b. **Hardness-Dependent Metals Criteria and Objectives.** The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The Basin Plan also contains numeric objectives for several metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria or objectives include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria or objectives for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the

SIP<sup>1</sup>, the CTR<sup>2</sup> and State Water Board Order No. WQO 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), Table 4, note 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. In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. 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 WQO 2008-0008, p. 11). The Regional Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, in this Order, the lowest observed hardness in the effluent or upstream receiving water (whichever was lowest) was used to calculate the hardness-dependent criteria or objectives.

**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 criterion or objective that has been properly adjusted for hardness.

- For comparing the MEC to the applicable criterion or objective, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case hardness was used to adjust the criterion or objective. In this Order, the lowest observed effluent or receiving water hardness (whichever was lower) was used as a conservative approach.
- For comparing the Maximum Ambient Background Concentration to the applicable criterion or objective, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case upstream hardness was used to adjust the criterion. In this evaluation the area outside the influence of the discharge is analyzed. For this situation, the discharge does not impact the upstream hardness. Therefore, the effect of the effluent hardness was not included in this evaluation.

---

<sup>1</sup> 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.

<sup>2</sup> The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO<sub>3</sub>), 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.

Upstream receiving water hardness for Cottonwood Creek ranged from 55 mg/L to 135 mg/L (as CaCO<sub>3</sub>), based on 40 samples collected between January 2006 to December 2009. The effluent hardness ranged from 64 mg/L to 113 mg/L (as CaCO<sub>3</sub>), based on 41 samples from January 2006 to June 2009. Because Cottonwood Creek is not an effluent dominated stream, the lowest hardness of the receiving water (55 mg/L as CaCO<sub>3</sub>) was used to represent a reasonable worst case receiving water hardness. Thus, for evaluating whether the MEC or Maximum Background Ambient Concentration exceeds the applicable criterion or objective, the criterion or objective was adjusted using a reasonable worst-case receiving water hardness of 55 mg/L (as CaCO<sub>3</sub>).

**Assimilative Capacity Determination for Hardness-Dependent Metals Criteria or Objectives.** Hardness dependent metals determined to have reasonable potential include both copper and zinc. Analysis of ambient receiving water concentrations in Cottonwood Creek indicates large variation in total recoverable concentrations of copper and zinc. This variation is due to naturally occurring conditions, which include large flow variations and high sediment load. Ambient dissolved metals concentrations for the same metals exhibit far less variability and provide a more appropriate basis for determining how much assimilative capacity the receiving water has available for the dissolved metals present in the discharge. Assimilative capacity is typically determined using total recoverable concentrations, however the SIP, in section 1.4, step 2, allows for the determination of assimilative capacity using dissolved concentrations where appropriate (e.g., highly variable total recoverable concentrations with respect to corresponding dissolved concentrations). Furthermore, as stated in the CTR (Federal Register, Vol. 65, No. 97, Section F(2)(b) for 40 CFR, Part 131), *"It is now the Agency's [EPA's] policy that the use of dissolved metal to set and measure compliance with aquatic life water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of the metal in the water column than does total recoverable metal"*. Given the natural variation of total recoverable metals concentrations in the receiving water, SIP guidance, and EPA's policy, assimilative capacity for copper and zinc was determined using dissolved criteria and dissolved ambient background concentrations.

**Effluent Concentration Allowance (ECA) Calculations.** This Order followed SIP procedures to calculate an Effluent Concentration Allowance (ECA) for each of the hardness-dependent metals determined to have Reasonable Potential (copper and zinc, in this case). The SIP's ECA equation is presented below.

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

where, C = the applicable priority pollutant criterion or objective,  
D = the dilution credit, if granted, and  
B = the ambient background pollutant concentration.

The factor, (C – B), is referred to as the assimilative capacity.

- c. **Mixing Zones and Dilution Credits.** The CWA directs states to adopt water quality standards to protect the quality of its waters. USEPA's current water quality standards regulation authorizes states to adopt general policies, such as mixing zones, to implement state water quality standards (40 CFR 122.44 and 122.45). The USEPA allows states to have broad flexibility in designing its mixing zone policies. Primary policy and guidance on determining mixing zone and dilution credits is provided by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* (State Implementation Policy or SIP) and the Basin Plan. If no procedure applies in the SIP or the Basin Plan, then the Regional Water Board may use the USEPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001)(TSD).

The allowance of mixing zones by the Central Valley Water Board is discussed in the Basin Plan, Policy for Application of Water Quality Objectives (Implementation page IV-16), which states in part, *"In conjunction with the issuance of NPDES and storm water permits, the Regional Board may designate mixing zones within which water quality objectives will not apply provided the discharger has demonstrated to the satisfaction of the Regional Board that the mixing zone will not adversely impact beneficial uses. If allowed, different mixing zones may be designated for different types of objectives, including, but not limited to, acute aquatic life objectives, chronic aquatic life objectives, human health objectives, and acute and chronic whole effluent toxicity objectives, depending in part on the averaging period over which the objectives apply. In determining the size of such mixing zones, the Regional Board will consider the applicable procedures and guidelines in the EPA's Water Quality Standards Handbook and the [TSDsnyder]. Pursuant to EPA guidelines, mixing zones designated for acute aquatic life objectives will generally be limited to a small zone of initial dilution in the immediate vicinity of the discharge."*

Section 1.4.2 of the SIP states, in part, *"...with the exception of effluent limitations derived from TMDLs, in establishing and determining compliance with effluent limitations for applicable human health, acute aquatic life, or chronic aquatic life priority pollutant criteria/objectives or the toxicity objective for aquatic life protection in a basin plan, the Regional Board may grant mixing zones and dilution credits to dischargers...The applicable priority pollutant criteria and objectives are to be met throughout a water body except within any mixing zone granted by a Regional Board. The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis. The Regional Board*

*may consider allowing mixing zones and dilution credits only for discharges with a physically identifiable point of discharge that is regulated through an NPDES permit issued by the Regional Board.”*

This Order only allows a mixing zone for aquatic life and human health criteria. For completely-mixed discharges, the Central Valley Water Board may grant a mixing zone and apply a dilution credit in accordance with Section 1.4.2.1 of the SIP. For incompletely-mixed discharges, the Discharger must perform a mixing zone study to demonstrate to the Central Valley Water Board that a dilution credit is appropriate. In granting a mixing zone, the SIP states that a mixing zone shall be as small as practicable, and as provided in Section 1.4.2.2, shall not:

*(1) Compromise the integrity of the entire water body;*

The downstream edge of the longest mixing zone being granted in this permit is 160 feet downstream of the diffuser. From the diffuser downstream to the confluence of the Sacramento River, is a distance of approximately 4.5 river miles. Mixing zones granted in this Order do not compromise the integrity of the entire water body. Based on the results of the biological assessment, the integrity of the water body is not impacted within the mixing zone, let alone outside of the mixing zone.

*(2) Cause acutely toxic conditions to aquatic life passing through the mixing zone;*

The Discharger is required to conduct quarterly whole effluent toxicity testing for acute toxicity. Based on these results and results of the biological assessment conducted to support the mixing zone application, acutely toxic conditions are not present within the mixing zone.

*(3) Restrict the passage of aquatic life;*

Based on results of the mixing zone study and biological assessment, mixing zones granted in this Order do not restrict the passage of aquatic life. A zone of passage is present in all cases.

*(4) Adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws;*

Results of the biological assessment suggest effects on the benthic macro invertebrate (BMI) community are insignificant just below and within the mixing zone. No biologically sensitive or critical habitats were observed during field surveys and BMI sampling. Results from acute and chronic whole effluent toxicity testing do not indicate that the discharge has adverse effects at 100% effluent, let alone diluted effluent. Discharger must continue to meet acute and chronic toxicity requirements as part of this Order.

*(5) Produce undesirable or nuisance aquatic life;*

Based on the observations of researchers who conducted the biological assessment for the mixing zone study, no significant differences in the density or species composition of algae were noted during surveys between the mixing and reference zones. No significant changes were observed in the benthic macro invertebrate (BMI) community, indicating that undesirable or nuisance conditions are not being created.

*(6) Result in floating debris, oil, or scum;*

The mixing zone request was for aquatic life and human health criteria and objectives. This Order implements stringent, pollutant-specific effluent limitations, and discharge prohibitions to prevent these conditions from occurring. Receiving water monitoring to detect any of these problems is also required. Historical monitoring of the effluent and receiving water has never indicated problems.

*(7) Produce objectionable color, odor, taste, or turbidity;*

The mixing zone request was for aquatic life and human health criteria and objectives. This Order implements stringent, pollutant-specific effluent limitations, and discharge prohibitions to prevent these conditions from occurring. Receiving water monitoring to detect any of these problems is also required. Historical monitoring of the effluent and receiving water has never indicated problems.

*(8) Cause objectionable bottom deposits;*

The mixing zone request was for aquatic life and human health criteria and objectives. This Order implements stringent, pollutant-specific effluent limitations, and discharge prohibitions to prevent these conditions from occurring. Receiving water monitoring to detect any of these problems is also required. Historical monitoring of the effluent and receiving water has never indicated problems.

*(9) Cause nuisance;*

The mixing zone request was for aquatic life and human health criteria and objectives. This Order implements stringent, pollutant-specific effluent limitations, and discharge prohibitions to prevent these conditions from occurring. Receiving water monitoring to detect any of these problems is also required. Historical monitoring of the effluent and receiving water has never indicated problems.

*(10) Dominate the receiving water body or overlap a mixing zone from different outfalls; and*

The subject diffuser is approximately 50 feet long and is positioned such that its reach (perpendicular to the width of Cottonwood Creek) is approximately 35 feet. Cottonwood Creek is approximately 110 feet wide in the vicinity of the diffuser. Mixing zones granted by this permit do not dominate the water body. There are no other permitted NPDES discharges to Cottonwood Creek.

*(11) Be allowed at or near any drinking water intake.*

The downstream edge of the longest mixing zone being granted in this permit is 160 feet downstream of the diffuser. There are no known drinking water intakes within the reach of this mixing zone. There are no known drinking water intakes from the diffuser downstream to the confluence of the Sacramento River, a distance of approximately 4.5 river miles.

The Discharger has completed an instream mixing zone study, subsequent biological evaluation with DFG consultation, and a complete anti-degradation analysis per State Board Resolution 68-16. The mixing zone study was conducted in August 2008 using Rhodamine WT dye and transects positioned downstream of the diffuser. Maximum dye concentrations were measured along each transect. Instream dye concentration-based dilution ratios were calculated as the ratio of the maximum measured dye concentration at each transect to the effluent dye concentration. The dye concentration-based dilution ratios calculated from the field study conditions were proportionally adjusted to the critical receiving water and effluent flow conditions per the SIP section 1.4.2.1. The critical receiving water flows were determined using USGS Gauging Station 11376000 data and EPA's DFLOW model. The critical effluent flows were determined using the Discharger's effluent monitoring records. The resulting Concentration-based Critical Dilution Ratios are summarized below.

Distance Downstream from Diffuser (ft)	Concentration-based Critical Dilution Ratios		
	Acute Aquatic Life	Chronic Aquatic Life	Human Health
50	2.35	2.61	9.60
100	2.62	2.91	10.65
150	5.14	5.71	20.78
Flow-based Critical Dilution Ratios per SIP Section 1.4.2.1, Table 3.	36	42	298

Based on the results of the mixing zone study and per guidelines presented in the SIP, an incompletely mixed discharge occurs in the vicinity of the diffuser. An evaluation of the 11 mixing zone conditions outlined above was conducted. Information submitted by the Discharger in a report, *Biological Assessment of the Cottonwood Wastewater Treatment Plant Mixing Zone: Cottonwood Creek* was considered.

As suggested by the SIP, in determining the extent of, or whether to, allow a mixing zone and dilution credit, the Central Valley Water Board has considered the presence of any pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to aquatic organisms, and concluded that the allowance of the mixing zone and dilution credit does not adversely affect the beneficial uses of the receiving water.

The mixing zone therefore complies with the SIP, the Basin Plan, and applicable guidance. In determining the size of the mixing zone, the Central Valley Water Board has considered the procedures, guidelines, and references in the SIP, EPA’s Water Quality Standards Handbook, 2nd Edition (updated July 2007), and Section 5.1, and Section 2.2.2 of the TSD. A summary of granted dilution credits is presented in Table F-6. In no case was the Discharger granted a dilution credit or mixing zone that is larger than necessary for the Discharger to comply after implementing Best Practicable Treatment or Control for each pollutant.

In order to ensure that the granting of dilution credits does not allow the Discharger to relax treatment or control performance, this Order requires: an annual evaluation of removal efficiency trends; an annual review of BPTC implementation; and annual instream verification of pollutant concentrations at the edge of the respective mixing zones. Full, and optimal implementation of BPTC is required at all times.

**Table F-6. Summary of Granted Dilution Credit**

Constituent	Dilution Credit	Corresponding Length of Mixing Zone	Criterion
Ammonia	5.5	158 ft	EPA NAWQC, Aquatic Life
Copper, Total Recoverable	5.5	158 ft	CTR CCC, Aquatic Life
Chlorodibromomethane	5	27 ft	CTR W&O, Human Health
Cyanide	5.5	158 ft	CTR CCC, Aquatic Life
Dichlorobromomethane	20	160 ft	CTR W&O, Human Health
Bis-2-ethylhexylphthalate	1	4ft	CTR W&O, Human Health
Nitrate as N	9	58 ft	USEPA Primary MCL & NAWQC
Zinc, Total Recoverable	5.5	158 ft	BP Instantaneous Max, Aquatic Life

- d. **Metal Translators.** Effluent limits applicable to this discharge were calculated using USEPA default metals translators.

**3. Determining the Need for WQBELs**

- a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Central Valley Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a

minimum, “...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)” in Title 22 of CCR. The 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.”

- b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, 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 from Discharge Point No. 001 to Cottonwood Creek for ammonia, chlorodibromomethane, copper, cyanide, dichlorobromomethane, bis-2-ethylhexylphthalate, zinc, and nitrate. WQBELs for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.
- c. 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 Regional Water Board may use the SIP as guidance for water quality-based toxics control.<sup>1</sup> 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 constituents.
- d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.
- e. **Ammonia.** 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 at toxic concentrations would violate the Basin Plan narrative toxicity objective. Applying 40 CFR 122.44(d)(1)(vi)(B), it is appropriate to use the NAWQC for the protection of freshwater aquatic life for ammonia.

---

<sup>1</sup> See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

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. As discussed in section III.C.1 of this Fact Sheet, warm and cold SPWN beneficial uses have been applied to Cottonwood Creek. Fall-run Chinook, Late-fall-run Chinook, Spring-run Chinook, and Steelhead trout are present in Cottonwood Creek. Therefore, the recommended criteria for waters where salmonids and early life stages are present were used.

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

The Discharger collects downstream receiving water temperature and pH data monthly. This data obtained from the Discharger's monthly monitoring reports from January 2006 through June 2009 were used to develop the chronic criteria. Using downstream receiving water data, the 30-day CCC was calculated for each day when temperature and pH were measured. Based on the highest running average downstream receiving water pH of 7.6, and the highest running average downstream receiving water temperature of 27.5°C, the 30-day CCC is 1.72 mg/L (as N) for the discharge to Cottonwood Creek. 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 1.72 mg/L (as N), the 4-day average concentration that should not be exceeded is 4.30 mg/L (as N).

The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day average, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

The Discharger has collected receiving water data to demonstrate assimilative capacity in Cottonwood Creek for ammonia. As described in Fact Sheet section IV.C.2.c, a dilution credit for ammonia of 5.5 can be granted, based on the available aquatic life dilution. Therefore, this Order includes an AMEL and MDEL for ammonia of 13.7 and 36.5 mg/L, respectively, based on the NAWQC for the protection of freshwater aquatic life, and a dilution credit of 5.5 for discharges to Cottonwood Creek (see Attachment F, Table F-8 for WQBEL calculations).

Based on the sample results for the effluent and the Facility's historical performance record, it appears the Discharger can immediately comply with these limitations.

**f. Bis-2-ethylhexylphthalate.** Bis-2-ethylhexylphthalate, in addition to several other phthalates, is used primarily as one of several plasticizers in polyvinyl chloride (PVC) resins for fabricating flexible vinyl products. According to the Consumer Product Safety Commission, USEPA, and the Food and Drug Administration, these PVC resins are used to manufacture many products, including soft squeeze toys, balls, raincoats, adhesives, polymeric coatings, components of paper and paperboard, defoaming agents, animal glue, surface lubricants, and other products that must stay flexible and non-injurious for the lifetime of their use. The State MCL for bis-2-ethylhexylphthalate is 4 µg/L and the USEPA MCL is 6 µg/L. The NTR criterion for human health protection for consumption of water and aquatic organisms is 1.8 µg/L and for consumption of aquatic organisms only is 5.9 µg/L.

Bis-2-ethylhexylphthalate was detected in 13 of 42 effluent samples collected between January 2006 and June 2009. The reported MEC is 3 µg/L. Six samples were reported at 2 µg/L, six samples were reported at 1 µg/L, and the remaining samples were reported non-detect. Per SIP section 1.4.3.2, ECA calculations for a priority pollutant criterion/objective that are intended to protect human health from carcinogenic effects are based on the ambient background concentration as an arithmetic mean. In this case, one sample has been collected upstream of the discharge in December 2005, with a resulting concentration of <0.7 µg/L. The arithmetic mean background concentration was calculated as one-half the detection limit of <0.7 µg/L or 0.35 µg/L. Cottonwood Creek has assimilative capacity for bis-2-ethylhexylphthalate. As described in section IV.C.2.c, a dilution credit of 1 can be granted, based on available human health dilution.

Using this value, the resulting AMEL and MDEL are 3.57 and 9.56, respectively (see Attachment F, Table F-13 for WQBEL calculations). It appears, based on the historic data set, that the Discharger can immediately comply with these new limits. Effluent limits for bis-2-ethylhexylphthalate are a new regulatory requirement within this permit.

- g. **Carbon Tetrachloride.** Carbon tetrachloride is a clear heavy organic liquid with a sweet aromatic odor similar to chloroform. It is primarily used to make chlorofluorocarbon propellants and refrigerants, though its use has been declining steadily. It has also been used as dry cleaning agent and in fire extinguishers, in making nylon, as a solvent for rubber cement, soaps, insecticides, etc. The CTR criterion for human health protection for consumption of water and aquatic organisms for carbon tetrachloride is 0.25 ug/L.

The MEC for carbon tetrachloride was estimated at 3 ug/L (J flag), based on 2 samples collected in 2006. Carbon tetrachloride was not detected in two upstream receiving water in Cottonwood Creek. Because only limited carbon tetrachloride data exists, only one of the two samples contained detectable concentrations (estimated concentration only), and no known sources of carbon tetrachloride contribute to the wastewater stream, insufficient information exists to determine reasonable potential. This Order requires quarterly monitoring for carbon tetrachloride. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality criterion, this Order may be reopened and modified by adding an appropriate effluent limitation.

- h. **Chlorodibromomethane.** The CTR includes a chlorodibromomethane criterion of 0.41 ug/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for chlorodibromomethane was 30.1 ug/L, based on 39 samples collected between February 2006 and June 2009. The next highest detectable concentration during this period was 1.8 ug/L with an average concentration (using one-half the MDL for non-detect values) of 1.09 ug/L. No sample data for chlorodibromomethane is available for the upstream receiving water during this period, however for the purposes of developing a protective effluent limit, two data points, one obtained in January 2002 (<0.5 ug/L) and one in December 2005 (0.1 ug/L “J Flagged”) were utilized. Based on the effluent data, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for chlorodibromomethane.

Per SIP section 1.4.3.2, ECA calculations for a priority pollutant criterion/objective that are intended to protect human health from carcinogenic effects are based on the ambient background concentration as an arithmetic mean. In this case ambient background concentration as an arithmetic mean was calculated using one-half the January 2002 concentration plus the full December 2005 “J-Flag” value divided by 2 to obtain an ambient background concentration of 0.175. Ambient monitoring demonstrates Cottonwood Creek has assimilative capacity for chlorodibromomethane. As described in section IV.C.2.c, a dilution credit for chlorodibromomethane of 5 can be granted, based on the available human health dilution. As shown in Table F-9, this results in an AMEL and MDEL of 1.53 ug/L and 3.80 ug/L, respectively.

As previously discussed the MEC for chlorodibromomethane was 30.1 ug/L. Using this value and the remaining 40 samples in the data set, the 99.9% upper confidence level was estimated at 2.93 ug/L. The average effluent concentration was 1.09 ug/L, therefore it appears, based on the facility's historic performance record, the Discharger can immediately comply with these limitations. As mentioned the Discharger is completing the installation of automated disinfection controls at the facility. This improvement is expected to reduce the concentration of chlorodibromomethane in the effluent. Effluent limitations for chlorodibromomethane are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order.

- i. **Copper.** The CTR and the Basin Plan include hardness-dependent criteria and objectives for the protection of freshwater aquatic life for copper. The criteria and objectives are presented in dissolved concentrations. USEPA recommends conversion factors to calculate total recoverable criteria. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Using the reasonable worst-case representative ambient hardness of 55 mg/L as CaCO<sub>3</sub>, as described in section IV.C.2.b of this Fact Sheet, and the default conversion factors, the applicable chronic criterion (maximum 4-day average concentration) is 5.60 ug/L and the applicable acute criterion (maximum 1-hour average concentration) is 7.81 ug/L, as total recoverable concentrations.

The MEC for total copper was 39.9 ug/L, based on 42 samples collected between January 2006 and June 2009. The maximum observed upstream receiving water concentration was 168 ug/L based on 34 samples collected between January 2006 and June 2009. Because total copper in the effluent or upstream receiving water exceeds the criteria or objectives, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the criteria or objectives.

As described in section IV.C.2.b of the Fact Sheet, the  $ECA_{acute}$  and  $ECA_{chronic}$  for discharges to Cottonwood Creek were determined using a hardness of 55 mg/L (as CaCO<sub>3</sub>), which is protective under all discharge and mixing conditions. Using the procedures for calculating WQBELs in section 1.4 of the SIP, and as described in section IV.C.2.b of the Fact Sheet (including a dilution credit of 5.5), this results in an  $ECA_{acute}$  and an  $ECA_{chronic}$  for copper of 41.5 ug/L and 26.1 ug/L, respectively. These ECAs are adjusted to long term averages, and then calculated as an AMEL and MDEL for total copper of 20.9 ug/L and 41.5 ug/L, respectively. These limits are included in this Order (see Attachment F, Table F-10 for WQBEL calculations).

As previously discussed, the MEC for total copper was 39.9 ug/L. Using this value and the remaining 41 samples in the data set, the 99.9% upper confidence level was estimated at 30.0 ug/L. With the exception of 39.9 ug/L all effluent concentrations in the data set fall below 30.0 ug/L. Also, after the 39.9 ug/L concentration, the next highest value was 19.8 ug/L. Therefore it appears, based

on the facility's historical performance record, the Discharger can immediately comply with the AMEL and MDEL.

- j. **Cyanide.** The CTR includes maximum 1-hour average and 4-day average cyanide criteria concentrations of 22 ug/L and 5.2 ug/L, respectively for the protection of freshwater aquatic life. The Basin Plan also includes criteria for the protection of freshwater aquatic life for cyanide. The Basin Plan instantaneous maximum objective is 10 ug/L. The MEC for cyanide was 20 ug/L, based on 41 samples collected between January 2006 and June 2009, while the maximum observed upstream receiving water cyanide concentration was <2 ug/L, based on 2 samples collected in January 2002 and December 2005. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR and Basin Plan criteria for cyanide. The ambient monitoring demonstrates the receiving water has assimilative capacity for cyanide. As described in section IV.C.2.c, a dilution credit for cyanide of 5.5 can be granted, based on the available dilution.

Therefore, using the allowed aquatic life dilution credit of 5.5, an AMEL and MDEL for cyanide of 20.69 ug/L and 51.52 ug/L, respectively, are included in this Order based on the CTR criterion for the protection of aquatic life for discharges to Cottonwood Creek (see Attachment F, Table F-11 for WQBEL calculations).

- k. **Dichlorobromomethane.** The CTR includes a dichlorobromomethane criterion of 0.56 ug/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for dichlorobromomethane was 22.5 ug/L, based on 41 samples collected between January 2006 and June 2009. No sample data for dichlorobromomethane is available for the upstream receiving water during this period, however for the purposes of developing a protective effluent limit, two data points, one obtained in January 2002 (<0.5 ug/L) and December 2005 (estimated concentration of 0.06 ug/L) were utilized. Based on the effluent data, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane.

Per SIP section 1.4.3.2, ECA calculations for a priority pollutant criterion/objective that are intended to protect human health from carcinogenic effects are based on the ambient background concentration as an arithmetic mean. In this case ambient background concentration as an arithmetic mean was calculated using one-half the January 2002 concentration plus the full December 2005 "J-Flag" value divided by 2 to obtain an ambient background concentration of 0.155. The ambient monitoring demonstrates Cottonwood Creek has assimilative capacity for dichlorobromomethane. As described in section IV.C.2.c, a dilution credit for dichlorobromomethane of 20 can be granted, based on the available human health dilution.

Therefore, using the allowed human health dilution credit of 20, an AMEL and MDEL for dichlorobromomethane of 8.62 ug/L and 29.61 ug/L, respectively, are

included in this Order based on the CTR criterion for the protection of human health for discharges to Cottonwood Creek (see Attachment F, Table F-12 for WQBEL calculations).

As previously discussed the MEC for dichlorobromomethane was 22.5 ug/L. Using this value and the remaining 40 samples in the data set, the 99.9% upper confidence level was estimated at 5.14. With the exception of 22.5 ug/L, the next highest detectable effluent concentrations are 8.2 ug/L, therefore it appears, based on the facility's historical performance record, the Discharger can immediately comply with these limitations. As mentioned the Discharger is completing the installation of automated disinfection controls at the facility. This improvement is expected to reduce the concentration of dichlorobromomethane in the effluent. Effluent limitations for dichlorobromomethane are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order.

- I. **Dissolved Oxygen.** The Basin Plan contains a water quality objective for dissolved oxygen requiring that the dissolved oxygen concentrations of waters designated as COLD and SPWN shall not be reduced below 7.0 mg/L at any time. This Order contains receiving water limitations and monitoring to ensure that the Basin Plan objectives for Dissolved Oxygen are met. Historical monitoring results indicate that the discharge does not have reasonable potential to cause or contribute to an in-stream excursion below (non-compliant) the Basin Plan water quality objective for Dissolved Oxygen.
  
- m. **Nitrate.** 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 nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. DPH has adopted a Primary MCL at Title 22 CCR, Table 64431-A, for the protection of human health for nitrate equal to 10 mg/L (measured as nitrogen). Title 22 CCR, Table 64431 A, also includes a primary MCL of 10,000 ug/L (10 mg/L) for the sum of nitrate and nitrite, measured as nitrogen.

For nitrate, USEPA has developed Drinking Water Standards (10,000 ug/L as Primary MCL) and NAWQC for protection of human health (10,000 ug/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

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 MCLs for nitrate. The MEC for nitrate, based on 42 samples collected between January 2006 and June 2009, was reported as 88 mg/L with an average

concentration of 44.69 mg/L. Discharger has not collected nitrate data upstream of the discharge, however the California Department of Water Resources collects ambient data from Station A0352050 upstream of the discharge; of 16 samples collected between February 2003 and August 2009, a maximum concentration of 0.24 mg/L was detected. This value demonstrates Cottonwood Creek has assimilative capacity for nitrate. As described in section IV.C.2.c, a dilution credit for nitrate of 9 can be granted, based on the available human health dilution. Therefore, using the allowed human health dilution credit of 9, an AMEL for nitrate of 90 mg/L is included in this Order based on the Primary MCL and NAWQC criterion for the protection of human health for discharges to Cottonwood Creek (see Attachment F, Table F-13 for WQBEL calculations). Effluent monitoring data indicates that the Discharger can immediately comply with the new limit.

Effluent limitations for nitrate are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order.

n.

n. **Pathogens.** The beneficial uses of Cottonwood 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. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Central Valley Water Board dated 8 April 1999, the California Department of Health Services (DHS, now California Department of Public Health) indicated that DHS would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any 30 day period. This Order contains a 500 MPN/100mL daily maximum effluent coliform limit, 23 MPN/100mL as a 7-day median effluent limitation, and 240 MPN/100mL as a shall not exceed more than once per month maximum effluent limitation.

**Pesticides.** Aldrin, Alpha Benzene Hexachloride (Alpha-BHC), and Gamma Hexachloro-cyclohexane (Gamma-BHC), constituents commonly found in pesticides have been detected in effluent during the most recent permit cycle. The Basin Plan contains water quality objectives applicable to pesticides for waters with the designated beneficial use of Municipal Supply (MUN). Cottonwood Creek is designated MUN, however specific MCLs for Aldrin, Alpha-BHC, and Gamma-BHC are not available. Applicable water quality objectives for each constituent are discussed below.

**Aldrin.** The CTR includes an Aldrin criterion of 0.00013 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for water from which

both water and organisms are consumed. The MEC for Aldrin was 0.043 µg/L based on two samples collected in November 2006. Aldrin was not detected in two samples (January 2002 at <0.002, and December 2005 at <0.002) in upstream receiving water samples in Cottonwood Creek. The existing information is insufficient to determine if the discharge has reasonable potential to exceed water quality objectives. Therefore, this Order requires quarterly monitoring of Aldrin. In the event, monitoring results confirm reasonable potential exists, this Order may be reopened for the purposes of establishing an effluent limit for Aldrin.

**Alpha Benzene Hexachloride (Alpha-BHC, or a-BHC).** The CTR includes an Alpha-BHC criterion of 0.014 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for water from which both water and organisms are consumed. The MEC for Alpha-BHC was 0.031 µg/L based on two samples collected in November 2006. Alpha-BHC was not detected in two samples (January 2002 at <0.005, and December 2005 at <0.005) in upstream receiving water samples in Cottonwood Creek. The existing information is insufficient to determine if the discharge has reasonable potential to exceed water quality objectives. Therefore, this Order requires quarterly monitoring of Alpha-BHC. In the event, monitoring results confirm reasonable potential exists, this Order may be reopened for the purposes of establishing an effluent limit for Alpha-BHC.

**Gamma Hexachloro-cyclohexane (Gamma-BHC, or g-BHC).** The CTR includes a Gamma-BHC criterion of 0.019 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for water from which both water and organisms are consumed. The MEC for Gamma-BHC was 0.024 µg/L based on two samples collected in November 2006. Aldrin was not detected in two samples (January 2002 at <0.005 and December 2005 at <0.005) in upstream receiving water samples in Cottonwood Creek. The existing information is insufficient to determine if the discharge has reasonable potential to exceed water quality objectives. Therefore, this Order requires quarterly monitoring of Gamma-BHC. In the event, monitoring results confirm reasonable potential exists, this Order may be reopened for the purposes of establishing an effluent limit for Gamma-BHC.

- p. **pH.** 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.* Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.
- q. **Salinity.** The discharge contains total dissolved solids (TDS) and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective

that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.

**Table F-7. Salinity Water Quality Criteria/Objectives**

Parameter	Agricultural WQ Goal <sup>1</sup>	Secondary MCL <sup>3</sup>	Effluent	
			Average	Maximum
EC (umhos/cm)	700 <sup>2</sup>	900; 1,600; 2,200	495	702
TDS (mg/L)	Varies	500; 1,000; 1,500	361	467
Sulfate (mg/L)	Varies	250; 500; 600	Data Not Available	
Chloride (mg/L)	Varies	250; 500; 600	Data Not Available	

<sup>1</sup> Agricultural water quality goals 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)

<sup>2</sup> The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 umhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

<sup>3</sup> The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

- i. **Chloride.** The previous order did not require Discharger to collect samples for chloride analysis. Therefore, insufficient information exists to conduct a reasonable potential analysis for chloride. This Order requires increased monitoring for chloride.
- ii. **Electrical Conductivity.** The secondary MCL for electrical conductivity is 900 umhos/cm as a recommended level; 1,600 umhos/cm as an upper level; and 2,200 umhos/cm as a short-term maximum. The agricultural water quality goal for salt-sensitive crops is 700 umhos/cm as an annual average. It is unverified whether or not salt sensitive crops are or could be grown in the vicinity downstream of the discharge, therefore the conservative approach is to apply the agricultural goal of 700 umhos/cm.

A review of the Discharger’s monitoring reports from January 2006 through June 2009 shows an average effluent electrical conductivity of 495 umhos/cm, with a range from 222 umhos/cm to 702 umhos/cm for 40 samples. These levels do not exceed the applicable objective of 700 umhos/cm as an annual average. The background receiving water electrical conductivity concentration in Cottonwood Creek averaged 243 umhos/cm in 40 sampling events collected by the Discharger from January 2006 through June 2009. Therefore, there is no reasonable potential to exceed the applicable water quality objective. This Order requires effluent and receiving water monitoring for EC.

- iii. **Sulfate.** The previous order did not require the Discharger to collect samples for sulfate analysis. Therefore, insufficient information exists to conduct a reasonable potential analysis for sulfate. This Order requires increased monitoring for sulfate.

- iv. **Total Dissolved Solids.** The secondary MCL for total dissolved solids is 500 mg/L as a recommended level; 1,000 mg/L as an upper level; and 1,500 mg/L as a short-term maximum. The recommended agricultural water quality goal for total dissolved solids, that would apply the narrative chemical constituent objective, is 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. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for 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 total dissolved solids concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the total dissolved solids, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.
- The average total dissolved solids effluent concentration was 361 mg/L; concentrations ranged from 268 mg/L to 467 mg/L for 42 samples collected by the Discharger from January 2006 through June 2009. The average concentration of 361 mg/L does not exceed the applicable water quality objectives. Background receiving water monitoring for total dissolved solids is not available for Cottonwood Creek. Therefore, there is no reasonable potential to exceed the applicable water quality objective. This Order requires effluent and receiving water monitoring for total dissolved solids.
- v. **Salinity Effluent Limitations and Evaluation and Minimization Plan.** The average electrical conductivity in the discharge is 495 umhos/cm, which is less than the lowest applicable objective of 700 umhos/cm (agricultural water quality goal). The average total dissolved solids effluent concentration of 361 mg/L is less than the agricultural water quality objective of 450 mg/L. Insufficient information was available for sulfate and chloride. Based on the available information, no reasonable potential exists, therefore no effluent limitations are necessary. Nonetheless, in an effort to minimize salt loading to Cottonwood Creek and the Sacramento River, this Order requires the Discharger to prepare and submit a Salinity Evaluation and Minimization Plan to address sources of salinity from the Facility.
- r. **Toxicity.** See Section IV.C.5 of the Fact Sheet regarding whole effluent toxicity.
- s. **Zinc.** The CTR and Basin Plan include hardness-dependent criteria and objectives for the protection of freshwater aquatic life for zinc. The criteria and objectives are presented in dissolved concentrations. USEPA recommends conversion factors to calculate total recoverable criteria. The USEPA default conversion factors for zinc in freshwater are 0.978 and 0.986 for acute and chronic criteria, respectively. Using the reasonable worst-case representative

ambient hardness of 55 mg/L as CaCO<sub>3</sub>, as described in section IV.C.2.b of this Fact Sheet, and the default conversion factors, the applicable chronic criterion (maximum 4-day average concentration) is 21.3 ug/L and the applicable acute criterion (maximum 1-hour average concentration) is 72.2 ug/L, as total recoverable concentrations.

The MEC for total zinc was 128 ug/L, based on 42 samples collected between January 2006 and June 2009. The maximum observed upstream receiving water concentration was 422 ug/L based on 34 samples collected between January 2006 and June 2009. Because total zinc in the effluent or upstream receiving water exceeds the criteria or objectives, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the criteria or objectives.

As described in section IV.C.2.b of the Fact Sheet, the ECA<sub>acute</sub> and ECA<sub>chronic</sub> for discharges to Cottonwood Creek were determined using a hardness of 55 mg/L (as CaCO<sub>3</sub>), which is protective under all discharge and mixing conditions. Using the procedures for calculating WQBELs in section 1.4 of the SIP, and as described in section IV.C.2.b of the Fact Sheet (including a dilution credit of 5.5), this results in an ECA<sub>acute</sub> and an ECA<sub>chronic</sub> for zinc of 131.3 ug/L and 462.1 ug/L, respectively. These ECAs are adjusted to long term averages, and then calculated as an AMEL and MDEL for total zinc of 77.6 ug/L and 131.3 ug/L, respectively. These limits are included in this Order (see Attachment F, Table F-13 for WQBEL calculations).

As previously discussed the MEC for total zinc was 128 ug/L. Using this value and the remaining 41 samples in the data set, the 99.9% upper confidence level was estimated at 108. With the exception of the 128 ug/L and 113 ug/L sample data all effluent concentrations in the data set fall below 108 ug/L, therefore it appears, based on the facility's historical performance record, the Discharger can immediately comply with the AMEL and MDEL.

#### 4. WQBEL Calculations

- a. As discussed in section IV.C.3. above, WQBELs for chlorine residual and pH were based on Basin Plan objectives and applied directly as effluent limitations. WQBELs for pathogens were based on California DPH recommendations. The WQBEL for nitrate was based on the Primary MCL and established directly as an AMEL.
- b. Effluent limitations for ammonia, chlorodibromomethane, copper, cyanide, dichlorobromomethane, bis-2-ethylhexylphthalate, and zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.

**Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were calculated as follows:

$$ECA_{HH} = HH + D(HH - B), \text{ (as a human health example)}$$

where:

$ECA_{acute}$  = effluent concentration allowance for acute (1-hour average) toxicity criterion

$ECA_{chronic}$  = effluent concentration allowance for chronic (4-day average) toxicity criterion

$ECA_{HH}$  = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (1-hour average)

CCC = criteria continuous concentration (4-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

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

where:  $mult_{AMEL}$  = statistical multiplier converting minimum LTA to AMEL  
 $mult_{MDEL}$  = statistical multiplier converting minimum LTA to MDEL  
 $M_A$  = statistical multiplier converting CMC to LTA  
 $M_C$  = statistical multiplier converting CCC to LTA

WQBELs were calculated for ammonia, chlorodibromomethane, copper, cyanide, dichlorobromomethane, bis-2-ethylhexylphthalate, and zinc as follows in Tables F-8 through F-14, below.

**Table F-8. WQBEL Calculations for Ammonia**

	Acute	Chronic (4-day)	Chronic (30-day)
Criteria (mg/L) <sup>1</sup>	5.62	4.3	1.72
Dilution Credit	5.5	5.5	5.5
ECA	36.48	27.90	11.13
ECA Multiplier	0.18	0.33	0.63
LTA <sup>2</sup>	6.52	9.22	6.99
AMEL Multiplier (95 <sup>th</sup> %)	2.10	<sub>3</sub>	<sub>3</sub>
<b>AMEL (mg/L)</b>	<b>13.7</b>	<b>3</b>	<b>3</b>
MDEL Multiplier (99 <sup>th</sup> %)	5.59	<sub>3</sub>	<sub>3</sub>
<b>MDEL (mg/L)</b>	<b>36.5</b>	<b>3</b>	<b>3</b>

- <sup>1</sup> USEPA Ambient Water Quality Criteria.  
<sup>2</sup> LTA developed based on Acute and Chronic ECA Multipliers calculated at 99th percentile level per sections 5.4.1 and 5.5.4 of TSD.  
<sup>3</sup> Limitations based on acute LTA ( $LTA_{acute} < LTA_{chronic(4-day)}$  and  $LTA_{acute} < LTA_{chronic(30-day)}$ ).

**Table F-9. WQBEL Calculations for Chlorodibromomethane**

	Human Health
Criteria (ug/L)	0.41
Dilution Credit	5
ECA	1.53
<b>AMEL (ug/L)<sup>1</sup></b>	<b>1.53</b>
MDEL/AMEL Multiplier <sup>2</sup>	1.91
<b>MDEL (ug/L)</b>	<b>3.80</b>

- <sup>1</sup> AMEL = ECA per section 1.4.B, Step 6 of SIP  
<sup>2</sup> Assumes sampling frequency n=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

**Table F-10. WQBEL Calculations for Copper**

	Acute	Chronic
Criteria, total recoverable (ug/L) <sup>(1)</sup>	7.81	5.6
Dilution Credit	5.5	5.5
ECA, total recoverable <sup>(2)</sup>	41.5	26.1
ECA Multiplier <sup>(3)</sup>	0.33	0.53
LTA	13.53	13.90
AMEL Multiplier (95 <sup>th</sup> %) <sup>(4)(5)</sup>	1.54	<sup>(7)</sup>
<b>AMEL (ug/L)</b>	<b>20.9</b>	<sup>(7)</sup>
MDEL Multiplier (99 <sup>th</sup> %) <sup>(6)</sup>	3.07	<sup>(7)</sup>
<b>MDEL (ug/L)</b>	<b>41.5</b>	<sup>(7)</sup>

- <sup>1</sup> CTR aquatic life criteria, based on a hardness of 55 mg/L as CaCO<sub>3</sub>. The criteria are based on USEPA default metals translator.  
<sup>2</sup> ECA calculated per section 1.4.B, Step 2 of SIP.  
<sup>3</sup> Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.  
<sup>4</sup> Assumes sampling frequency n<=4.  
<sup>5</sup> The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.  
<sup>6</sup> The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.  
<sup>7</sup> Limitations based on acute LTA (Acute LTA < Chronic LTA).

**Table F-11. WQBEL Calculations for Cyanide**

	Acute	Chronic
Criteria (ug/L) <sup>(1)</sup>	10	5.2
Dilution Credit	5.5	5.5
ECA <sup>(2)</sup>	59.50	28.30
ECA Multiplier <sup>(3)</sup>	0.21	0.38
LTA	12.47	10.80
AMEL Multiplier (95 <sup>th</sup> %) <sup>(4)(5)</sup>	<sup>(7)</sup>	1.92
<b>AMEL (ug/L)</b>	<sup>(7)</sup>	<b>20.7</b>
MDEL Multiplier (99 <sup>th</sup> %) <sup>(6)</sup>	<sup>(7)</sup>	4.77
<b>MDEL (ug/L)</b>	<sup>(7)</sup>	<b>51.5</b>

- 1 CTR aquatic life criteria, independent of hardness, no metals translator.
- 2 ECA calculated per section 1.4.B, Step 2 of SIP.
- 3 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
- 4 Assumes sampling frequency n<=4.
- 5 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
- 6 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
- 7 Limitations based on chronic LTA (Chronic LTA < Acute LTA).

**Table F-12. WQBEL Calculations for Dichlorobromomethane**

	Human Health
Criteria (ug/L)	0.56
Dilution Credit	20
ECA	8.66
<b>AMEL (ug/L)<sup>1</sup></b>	<b>8.62</b>
MDEL/AMEL Multiplier <sup>2</sup>	3.69
<b>MDEL (ug/L)</b>	<b>29.6</b>

- 1 AMEL = ECA per section 1.4.B, Step 6 of SIP
- 2 Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier, Table 2 of SIP.

**Table F-13. WQBEL Calculations for Bis-2-ethylhexylphthalate**

	Human Health
Criteria (mg/L)	1.8
Dilution Credit	1
ECA	3.57
<b>AMEL (ug/L)<sup>1</sup></b>	<b>3.57</b>
MDEL/AMEL Multiplier <sup>2</sup>	2.68
<b>MDEL (ug/L)</b>	<b>9.56</b>

- 1 AMEL = ECA per section 1.4.B, Step 6 of SIP
- 2 Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier, Table 2 of SIP.

**Table F-14. WQBEL Calculations for Zinc**

	Acute	Chronic
Criteria, total recoverable (ug/L) <sup>(1)</sup>	21.31	72.2
Dilution Credit	5.5	5.5
ECA, total recoverable <sup>(2)</sup>	131.25	462.11
ECA Multiplier <sup>(3)</sup>	0.43	0.64
LTA	56.71	294.26
AMEL Multiplier (95 <sup>th</sup> %) <sup>(4)(5)</sup>	1.37	<sup>(7)</sup>
<b>AMEL (ug/L)</b>	<b>77.6</b>	<sup>(7)</sup>
MDEL Multiplier (99 <sup>th</sup> %) <sup>(6)</sup>	2.31	<sup>(7)</sup>
<b>MDEL (ug/L)</b>	<b>131.3</b>	<sup>(7)</sup>

- <sup>1</sup> CTR aquatic life criteria and Basin Plan numeric objectives, based on a hardness of 55 mg/L as CaCO<sub>3</sub>. The criteria are based on USEPA default metals translator.
- <sup>2</sup> ECA calculated per section 1.4.B, Step 2 of SIP.
- <sup>3</sup> Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
- <sup>4</sup> Assumes sampling frequency n<=4.
- <sup>5</sup> The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
- <sup>6</sup> The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
- <sup>7</sup> Limitations based on acute LTA (Acute LTA < Chronic LTA).

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

**Table F-15. Summary of Water Quality-based Effluent Limitations for Discharge Point No. 001 (Cottonwood Creek)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
<b>Conventional Pollutants</b>						
pH	standard units	--	--	--	6.5	8.5
<b>Priority Pollutants</b>						
Copper, Total Recoverable	ug/L	20.9	--	41.5	--	--
Chlorodibromomethane	ug/L	1.53	--	3.80	--	--
Cyanide	ug/L	20.7	--	51.5	--	--
Dichlorobromomethane	ug/L	8.62	--	29.6	--	--
Bis-2-ethylhexylphthalate	ug/L	3.57	--	9.56	--	--
Zinc, Total Recoverable	ug/L	77.6	--	131.3	--	--
<b>Non-Conventional Pollutants</b>						
Ammonia Nitrogen, Total (as N)	mg/L	13.7	--	36.5	--	--
Chlorine, Total Residual	mg/L	--	0.011 <sup>1</sup>	0.019 <sup>2</sup>	--	--
Nitrate Nitrogen, Total (as N)	mg/L	90	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	23 <sup>3</sup>	500	--	240 <sup>4</sup>

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

- <sup>1</sup> Applied as a 4-day average effluent limitation.
- <sup>2</sup> Applied as a 1-hour average effluent limitation.
- <sup>3</sup> Applied as a 7-day median effluent limitation.
- <sup>4</sup> Effluent total coliform organisms are not to exceed 240 MPN/100 mL more than once in any 30-day period.

## 5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan’s narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate any 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 III-8.00) 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.*"

Acute toxicity is tested quarterly on Salmonids as percent survival after 96-hour exposure in 100% effluent. Order No. R5-2005-0037 establishes a limit of 70% survival for any single bioassay, and a median result of 90% survival for any three or more consecutive bioassays. Since August 2003, 24 acute toxicity tests have been performed. The acute toxicity results indicated 90%, or better, survival in 100% effluent for all tests. These data are summarized in Table F-30.

**Table F-16. Acute Toxicity, 96 hr % Survival, Salmonids in 100% Effluent**

Sample Date	Percent Survival
1/10/2006	100%
4/11/2006	100%
7/27/2006	100%
11/17/2006	100%
2/27/2007	100%
4/19/2007	100%
7/2/2007	95%
12/4/2007	100%
3/31/2008	95%
5/20/2008	100%
10/8/2008	100%
12/5/2008	100%
3/18/2009	100%
4/23/2009	100%
7/21/2009	100%
10/8/2009	100%
<b>Number of Tests</b>	<b>16</b>
<b>Average Test Result</b>	<b>99.37%</b>

In order to assure acute toxicity is not present within the mixing zone, 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 or more consecutive bioassays ----- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at page III-8.00). Per Order No. R5-2005-0037, the Discharger was required to conduct annual chronic toxicity testing as follows: 7-day *Ceriodaphnia dubia* (water flea) survival and reproduction, 7-day fathead minnow (*Pimephales promelas*) survival and growth, and green algal (*Selenastrum capricornutum*) growth. Since the beginning of the permit cycle in 2005, only the *Ceriodaphnia dubia* reproduction test results in 2007, were significantly reduced from the control. In this case, the lab control water result indicates problems with the test results. Residual chlorine after the laboratory dechlorination process is believed to be the cause of this effect. All other test results for *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum* have been normal, demonstrating the discharge has no reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s narrative toxicity objective. The following table summarizes whole effluent chronic toxicity testing performed by the Discharger from December 2006 through December 2008.

**Table F-17. Chronic Toxicity, Whole Effluent Data Summary**

Date	Parameter	Fathead Minnow Larval Survival and Growth Test		C. Dubia (Survival and Reproduction Test)		Selenastrum Capricornutum
		7 day % Survival	Avg. Dry Wt (mg)	6 day % Survival	Avg No. Young/Female	Growth
12/08	Effluent	100.0	0.41	100.0	25.9	2.91
	DMW Lab Control, dechlor	97.5	0.43	100.0	22.9	1.66
	DMW Lab Control	97.5	0.41	100.0	22.4	1.68
12/07	Effluent	96.6	0.41	100.0	0.5 <sup>1</sup>	0.97
	DMW Lab Control, dechlor	100.0	0.53	100.0	11.2 <sup>1</sup>	<sup>2</sup>
	DMW Lab Control	97.5	0.45	100.0	20.4	1.39
12/06	Effluent	96.8	0.57	100.0	30.0	3.81
	DMW Lab Control	97.5	0.57	100.0	30.5	1.99

<sup>1</sup> Significantly reduced from control, but apparent lab control problem.

<sup>2</sup> Data not available.

The discharge does not have reasonable potential to cause or contribute to an exceedance of the Basin Plan’s narrative toxicity objective. Therefore, a narrative effluent limit for chronic whole effluent toxicity has not been established in this Order.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region<sup>1</sup> that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *“In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.”* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under

<sup>1</sup> 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).

revision it is infeasible to develop numeric effluent limitations for chronic toxicity. However, the State Water Board found in WQO 2003-012 that, while it is not appropriate to include final numeric effluent limitations for chronic toxicity in NPDES permits for POTWs, permits must contain a narrative effluent limitation, numeric benchmarks for triggering accelerated monitoring, rigorous Toxicity Reduction Evaluation (TRE)/Toxicity Identification Evaluation (TIE) conditions, and a reopener to establish numeric effluent limitations for either chronic toxicity or the chemical(s) causing toxicity. This Order includes a reopener that allows the Central Valley Water Board to reopen the permit and include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.

To ensure compliance with the narrative effluent limitation and 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, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. 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 a pattern of effluent toxicity has been demonstrated.

## **D. Final Effluent Limitations**

### **1. Mass-based Effluent Limitations.**

Title 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 temperature, 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 permitted average dry weather flow allowed in Sections IV.A.1.g and IV.B.1.g of the Limitations and Discharge Requirements.

Except for the pollutants listed above, for those pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based, mass-based effluent limitations are not included in this Order.

## 2. Averaging Periods for Effluent Limitations.

Title 40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, the 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 utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia, chlorodibromomethane, copper, cyanide, dichlorobromomethane, bis-2-ethylhexylphthalate, 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. Based on a conversation between the Central Valley Water Board and the California DPH, annual average limitations are more appropriate for some pollutants whose effluent limitations are based on primary and secondary MCLs. DPH also recommends that an AMEL is more appropriate for pollutants such as nitrate for which the MCL is designed to be protective of acute health effects. Therefore, an AMEL has been applied for nitrate. Furthermore, for chlorine residual, BOD<sub>5</sub>, TSS, pH, and total coliform organisms, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in Attachment F, Section IV.C.3, above.

## 3. Satisfaction of Anti-Backsliding Requirements.

The Clean Water Act 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 Clean Water Act sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

Some effluent limitations in this revised Order are less stringent than those in the originally adopted Order. As discussed below this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

In the previous permit, the water quality-based effluent limitations (WQBELs) for copper and zinc were established without a dilution credit. In this new Order, the effluent limitations for these constituents have been recalculated using allowable dilution credits as explained in Section IV.C.2.c of the Fact Sheet. In some cases this has resulted in less stringent effluent limitations. Anti-backsliding requirements are satisfied, however, pursuant to CWA section 402(o)(2)(B), where the documentation and consideration of available dilution credits since adoption of the

previous permit, qualifies as new information which was not available at the issuance of the previous permit.

The changes in effluent limits or copper and zinc in the revised permit are based on new information generated since adoption of the original permit, and are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16, as described in Section IV.D.4, below.

**4. Satisfaction of Antidegradation Policy**

The Discharger submitted a report titled, *Antidegradation Analysis for the County Service Area No. 17, Cottonwood Wastewater Treatment Plant* (Report), dated December 2009 (PACE Engineering), that provides a complete antidegradation analysis following the guidance provided by State Water Board’s APU 90-004, Resolution 68-16, and the 1987 Policy Memorandum, which take into account federal antidegradation policy and guidance. Pursuant to these guidelines, the Report evaluates whether adoption of a mixing zone and its potential impact on water quality are consistent with the maximum benefit to the people of the state, will not unreasonably affect beneficial uses, will not cause water quality to be less than water quality objectives, and that the discharge provides protection for existing in-stream uses and water quality necessary to protect those uses.

Alternative control measured evaluated as part of the study include:

1. Higher level of treatment to eliminate the need for a mixing zone,
2. Zero discharge (100% recycling),
3. Seasonal discharge,
4. Flow restricted discharge,
5. Pollutant source minimization,
6. Connecting to a nearby water system,
7. Discharge to the Sacramento River, and
8. Change in drinking water source.

Results of the alternative controls analysis are summarized in Table F-18 below.

**Table F-18. Antidegradation Analysis, Alternative Controls Summary**

Summary	Plan Elements	Total Construction Cost	Annual Rate Increase	%MHI
Obtaining Dilution Credits	Perform mixing zone and dilution study, bioassessment, and antidegradation analysis to obtain dilution credits.	\$150,000	\$0	1.2

Summary	Plan Elements	Total Construction Cost	Annual Rate Increase	%MHI
Higher Level of Treatment	PAC addition.	\$500,000	\$60	1.4
Zero Discharge	Inadequate existing pond size and the cost to develop another pond preclude zero discharge from being a feasible alternative.			
Seasonal Discharge	Pond storage with irrigation during summer months and creek discharge during winter months.	\$1.65 million	\$130	1.6
Flow-restricted Discharge	In order to mitigate the lowering of water quality, this alternative defaults to the zero discharge alternative.			
Pollutant Source Minimization	Quicklime or hydrated lime addition.	\$100,000	\$32	1.3
Regionalization	No wastewater systems exist in the reasonable immediate vicinity.			
Discharge to the Sacramento River	The costs associated with piping and environmental mitigation are not financially feasible given the negligible, positive environmental impact that might result.			
Change in Water Supply	Not economically feasible to find better quality water source than the existing source.			

Based on the results of the alternative controls analysis, and a detailed assessment of potential impacts to Cottonwood Creek based on various dilution scenarios the study concludes, the tertiary treated wastewater is determined to comprise best practicable treatment or control and is consistent with federal and State antidegradation policies for the following reasons:

- The Discharger's tertiary treated effluent will be discharged through a diffuser to Cottonwood Creek. Discharge through the diffuser has occurred since the facility was constructed in 1986.
- Concentrations of constituents being discharged and identified as having reasonable potential will not change by granting dilution credits and associated mixing zones.
- Measurable effects in Cottonwood Creek water quality downstream of the discharge location will not be produced, as evaluated in the Discharger's biological assessment which incorporates DFG consultation and final concurrence.
- Existing or potential beneficial uses of the receiving water will not be adversely affected, nor will water quality fall below applicable water quality objectives outside the designated mixing zones.
- Any changes in water quality immediately surrounding the diffuser will be confined to the mixing zone.
- The mixing zones are as small as practicable.

The Central Valley Water Board concurs with the antidegradation analysis provided by the Discharger. No increased flows or pollutant concentrations/loadings will occur as a result of allowing a mixing zone or dilution credit. The discharge is

tertiary-level treated wastewater, which is a high level of treatment of sewage waste that is considered BPTC for most constituents in the wastewater and will result in attaining water quality standards applicable to the discharge. As part of this Order, the Discharger is required to evaluate BPTC performance on an annual basis to identify and improvements needed to maintain BPTC performance.

This Order grants mixing zones and dilution credits for several pollutants. As a condition for allowing the mixing zones and dilution credits, the Central Valley Water Board requires that Best Practicable Treatment or Control (BPTC) of these pollutants is implemented by the Discharger. The Central Valley Water Board finds, based on information in the record, including the Discharger’s antidegradation analysis report, that:

BPTC for the control and removal of copper, zinc, and bis-2-ethylhexylphthalate is secondary treatment plus the use of the Facility’s tertiary filters, effluent diffuser, and source control and minimization;

BPTC for the control and removal of cyanide, chlorodibromomethane, and dichlorobromomethane is secondary treatment plus the use of the Facility’s tertiary filters, effluent diffuser, and automated flow/concentration-based chlorination/dechlorination system; and,

BPTC for the control and removal of ammonia and nitrate is secondary treatment plus the use of the Facility’s nitrification and denitrification processes and capabilities, and effluent diffuser.

For the above reasons, the Central Valley Water Board finds that the permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

**Summary of Final Effluent Limitations Discharge Point No. 001**

**Table F-19. Summary of Final Effluent Limitations for Discharge Point No. 001**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Dry Weather Flow	MGD	0.43	--	--	--	--	DC
<b>Conventional Pollutants</b>							
Biochemical Oxygen Demand, 5-day @ 20°C	mg/L	10	15	30	--	--	TTC
	lbs/day <sup>2</sup>	36	54	108	--	--	
	% Removal	85	--	--	--	--	CFR
Total Suspended Solids	mg/L	10	15	30	--	--	TTC
	lbs/day <sup>2</sup>	36	54	108	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.5	BP

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
<b>Priority Pollutants</b>							
Copper, Total Recoverable	ug/L	20.9	--	41.5	--	--	CTR
Cyanide	ug/L	20.7	--	51.5	--	--	CTR
Zinc, Total Recoverable	ug/L	77.6	--	131.3	--	--	CTR
Bis-2-ethylhexylphthalate	ug/L	3.57	--	9.56	--	--	CTR
Chlorodibromomethane	ug/L	1.53	--	3.80	--	--	CTR
Dichlorobromomethane	ug/L	8.62	--	29.6	--	--	CTR
<b>Non-Conventional Pollutants</b>							
Ammonia Nitrogen, Total (as N)	mg/L	13.7	--	36.5	--	--	NAWQC
Chlorine, Total Residual	mg/L	--	0.011 <sup>3</sup>	0.019 <sup>4</sup>	--	--	NAWQC
Nitrate Nitrogen, Total (as N)	mg/L	90	--	--	--	--	MCL
Total Coliform Organisms	MPN/100 mL	--	23 <sup>5</sup>	500 <sup>5</sup>	--	240 <sup>5</sup>	Title 22

<sup>1</sup> DC – Based on the design capacity of the Facility.  
 TTC – Based on tertiary treatment capability of a properly operated tertiary treatment plant.  
 CFR – Based on secondary treatment standards contained in 40 CFR Part 133.  
 BP – Based on water quality objectives contained in the Basin Plan.  
 CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.  
 NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.  
 MCL – Based on the Primary Maximum Contaminant Level.  
 Title 22 – Based on CA Department of Public Health recommendations.

<sup>2</sup> Based on a design flow of 0.43 MGD.

<sup>3</sup> Applied as a 4-day average effluent limitation.

<sup>4</sup> Applied as a 1-hour average effluent limitation.

<sup>5</sup> Effluent total coliform organisms are not to exceed 23 MPN/100mL as a 7-day median, 240 MPN/100 mL more than once in any 30-day period, and 500 MPN/100mL as a daily max.

**a. Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays in undiluted waste shall not be less than:

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

**E. Interim Effluent Limitations [NOT APPLICABLE]**

**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 Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, taste and odors, temperature, toxicity, and turbidity.
  - a. **Ammonia.** The Basin Plan states that, “[w]aters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses.
  - b. **Bacteria.** Cottonwood Creek has been designated as having the beneficial use of contact recreation (REC-1). For water bodies designated as having REC-1 as a beneficial use, the Basin Plan includes a water quality objective limiting the “...fecal coliform concentration based on a minimum of not less than five samples for any 30-day period...” to a maximum geometric mean of 23 MPN/100ml.” The objective also states that “...[no] more than ten percent of the total number of samples taken during any 30-day period [shall] exceed 240/100 ml.” This objective is included in the Order as a receiving water limitation.
  - c. **Biostimulatory Substances.** The Basin Plan includes a water quality objective that “[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for

biostimulatory substances are included in this Order and are based on the Basin Plan objective.

- d. **Color.** The Basin Plan includes a water quality objective that “[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.
- e. **Chemical Constituents.** The Basin Plan includes a water quality objective that “[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.
- f. **Dissolved Oxygen.** Cottonwood Creek has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to Cottonwood Creek, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that “...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” This objective was included as a receiving water limitation in this Order.

- g. **Floating Material.** The Basin Plan includes a water quality objective that “[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.
- h. **Oil and Grease.** The Basin Plan includes a water quality objective that “[W]aters shall not contain oils, greases, waxes, or other materials 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.” Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.
- i. **pH.** The Basin Plan includes water quality objective that, “[T]he pH shall not be depressed below 6.5 nor raised above 8.5. This Order includes receiving water limitations for pH range.

- j. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.
- k. **Radioactivity.** The Basin Plan includes a water quality objective that *“[R]adionuclides shall not 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.”* The Basin Plan states further that *“[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations...”* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.
- l. **Sediment.** The Basin Plan includes a water quality objective that *“[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses”* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.
- m. **Settleable Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.
- n. **Suspended Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.”* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.
- o. **Taste and Odors.** The Basin Plan includes a water quality objective that *“[W]ater 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.”* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.
- p. **Temperature.** The receiving water has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that *“[a]t no time or place shall the temperature of COLD or WARM intrastate waters be*

*increased more than 5°F above natural receiving water temperature.” This Order includes a receiving water limitation based on this objective.*

- q. **Toxicity.** The Basin Plan includes a water quality objective that “[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- r. **Turbidity.** The Basin Plan includes a water quality objective that “[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
- *Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTU.*
  - *Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU.*
  - *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
  - *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
  - *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”*

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

## **B. Groundwater [NOT APPLICABLE]**

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), 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 MRP for this Facility.

## **A. Influent Monitoring**

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD<sub>5</sub> and TSS percent reduction requirements).
2. This Order retains continuous monitoring for flow and weekly monitoring for TSS and BOD<sub>5</sub>. TDS, EC, and pH are added requirements to assess potential sources of salinity in the discharge to aid in the identification of salinity minimization measures.

## **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/or groundwater.
2. Effluent monitoring requirements for flow, chlorine residual, pH, temperature, EC, TDS, dissolved oxygen, BOD<sub>5</sub>, TSS, turbidity, total coliform organisms, hardness, copper (total), zinc (total), cyanide, bis-2-ethylhexylphthalate, chloroform, bromoform, chlorodibromomethane, dichlorobromomethane, ammonia, aluminum, standard minerals, nitrate, acute and chronic toxicity, and priority pollutants have been retained from the previous order to characterize the effluent and determine compliance with applicable effluent limitations or conduct a reasonable potential analysis.
3. Monitoring data for oil and grease, and settleable solids did not demonstrate reasonable potential to exceed water quality criteria. Thus, specific monitoring requirements for these parameters have not been retained.
4. The previous order required quarterly monitoring for ammonia. Because the discharge demonstrates reasonable potential to cause an instream exceedance for ammonia, and untreated domestic wastewater contains ammonia and inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream, effluent limitations for ammonia have been included in this Order and monitoring has been increased to monthly.
5. Effluent monitoring requirements for electrical conductivity and total dissolved solids have been increased to monthly to aid in preparation of the Salinity Evaluation and Minimization Plan required as part of this Order.
6. Results of priority pollutant effluent monitoring conducted by the Discharger indicated concentrations of aldrin, beta-BHC, and gamma-BHC may be present in effluent; however insufficient data exists to determine reasonable potential. This Order requires quarterly monitoring for aldrin, beta-BHC, and gamma-BHC to confirm the presence or absence of these constituents in effluent.

7. The previous order required effluent monitoring for total and dissolved copper and zinc. Because effluent limitations for metals, including copper and zinc, must be expressed as total recoverable, monitoring for total copper must be used to determine compliance with effluent limitations. Monitoring for dissolved copper and dissolved zinc is not necessary to determine compliance with effluent limitations. Therefore, this Order does not retain effluent monitoring requirements for dissolved copper or dissolved zinc, however the Discharger is advised that dissolved data may be useful for future studies and evaluations.
8. Priority pollutant data for the effluent has been provided by the Discharger during the permit cycle of Order No. R5-2005-0037, and was used to conduct a reasonable potential analysis. In accordance with Section 1.3 of the SIP, the Central Valley Water Board shall require periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. Periodic priority pollutant monitoring is also necessary to provide data that would account for changes in the wastewater characterization. Monitoring for priority pollutants is required once during the 3<sup>rd</sup> year and once during the 4<sup>th</sup> year of the permit term to provide the data necessary for determining the reasonable potential for those pollutants for which no WQBELs or specific monitoring were established.

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly acute toxicity testing as required in Order No. R5-2005-0037 in order to demonstrate compliance with the effluent limitation for acute toxicity. This monitoring requirement is retained in this Order to determine compliance with the numeric effluent limitations for acute toxicity and the Basin Plan's narrative toxicity objective.
2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing was required in Order No. R5-2005-0037 in order to demonstrate compliance with the Basin Plan's narrative toxicity objective. This monitoring requirement is retained in this Order to determine compliance with the narrative effluent limitations for chronic toxicity 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. Order No. R5-2005-0037 established two receiving water monitoring stations: R-1, located approximately 100 feet upstream of the discharge (RSW-001) and; R-2 located approximately 100 feet downstream of the discharge (RSW-002). An additional receiving water monitoring station was established approximately 3,000 feet downstream of the discharge (RSW-003) for the purposes of

- evaluating potential site specific translators. This station may or may not be used for future analysis, as a site specific translator has not been adopted for this facility to date.
- c. As discussed in section IV.C.2.c of this Fact Sheet, mixing zones have been granted for copper, cyanide, zinc, ammonia, nitrate, chlorodibromomethane, dichlorobromomethane, and bis-2-ethylhexylphthalate. In order to confirm that water quality criteria and objectives are met at the edge of the mixing zones, monitoring location RSW-004 through RSW-008 have been established.
  - d. Receiving water monitoring requirements for flow, pH, dissolved oxygen, coliform, turbidity, temperature, hardness, EC, copper and zinc at upstream Monitoring Location RSW-001 have been retained from Order No. R5-2005-0037. Flow measurements can be obtained from USGS Gauging Station 11376000 approximately 2 miles downstream of the discharge.
  - e. Receiving water monitoring requirements for cyanide, ammonia, aluminum, priority pollutants, and standard minerals have been added to upstream Monitoring Location RSW-001. Monitoring of these constituents is required to characterize the background water quality relative to the applicable water quality criteria and objectives. Priority pollutant monitoring will be used to evaluate reasonable potential, in the future.
  - f. Receiving water monitoring requirements for dissolved oxygen, pH, turbidity, temperature, electrical conductivity, fecal coliform organisms, and total residual chlorine at downstream monitoring location RSW-002 have been retained from the previous order.
  - g. Receiving water monitoring requirements for hardness has been added to receiving water monitoring location RSW-002 and will be used to evaluate determine the applicable water criteria for hardness-dependent metals criteria.

## **2. Groundwater [NOT REQUIRED]**

### **E. Other Monitoring Requirements**

#### **1. Biosolids Monitoring.**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.5.b). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

#### **2. Water Supply Monitoring.**

In order to evaluate the sources of salinity, copper, and zinc in the wastewater, this Order requires annual monitoring for electrical conductivity, total dissolved solids, dissolved copper, and dissolved zinc.

### 3. **Underdrain System Discharge Monitoring.**

Underdrain system monitoring of flow and total and fecal coliform is required when discharging to evaluate potential impacts to groundwater beneficial uses. This requirement has been retained from Order No. R5-2005-0037.

## 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 Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

### B. Special Provisions

#### 1. Reopener Provisions

- a. **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 limitation, a new acute toxicity limitation, and/or a limitation 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 limitation based on that objective.
- b. **Total Maximum Daily Loads (TMDLs).** This Order may be reopened, and appropriate effluent limitations, or other controls, prescribed, in order to implement any TMDLs.
- c. **Salinity Evaluation and Minimization Plan.** This Order requires the Discharger to prepare a Salinity Evaluation and Minimization Plan (SEMP). This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for salinity based on review and implementation of the SEMP.

- d. **Reasonable Potential for Constituents with Insufficient Information.** This Order may be reopened, and appropriate effluent limitations added, if results from the Monitoring and Reporting Program indicate that carbon tetrachloride, aldrin, beta-BHC, or gamma-BHC is present at concentrations that have the reasonable potential to cause or contribute to an exceedance of applicable water quality criteria or objectives.

## 2. Special Studies and Additional Monitoring Requirements

- a. **Annual Performance Evaluation.** As discussed in the Fact Sheet, dilution and corresponding mixing zones have been granted for copper, cyanide, zinc, nitrate, bis-2-ethylhexylphthalate, ammonia, chlorodibromomethane, and dichlorobromomethane. In order to assure, at a minimum, current facility performance is maintained for these constituents, the Discharger is required to conduct an Annual Performance Evaluation on the removal efficiency of these constituents. In conducting this evaluation, Discharger shall determine, using appropriate statistical methods and a 99% confidence level, whether pollutant concentrations are increasing, decreasing, or exhibits no change in concentration. Discharger shall submit a work plan outlining the proposed methodology and statistical analysis to the Central Valley Water Board for approval no later than **6 months after date of adoption of this Order**. The Annual Performance Evaluation Report shall be submitted to the Central Valley Water Board **by 1 January, each year**.
- b. **Annual Best Practicable Treatment or Control (BPTC) Review.** As discussed in this Order, the Central Valley Water Board finds that:

BPTC for the control and removal of copper and zinc is the use of the Facility's tertiary filters, effluent diffuser, and source control and minimization;

BPTC for the control and removal of cyanide, chlorodibromomethane, and dichlorobromomethane is the use of the Facility's tertiary filters, automated flow/concentration-based chlorination/dechlorination system, and effluent diffuser; and,

BPTC for the control and removal of ammonia and nitrate is the use of the Facility's nitrification and denitrification processes and capabilities, and effluent diffuser.

In order to ensure that BPTC is fully, and optimally implemented, the Discharger shall conduct an annual review of the treatment and control measures used to implement BPTC, to determine if any modifications, maintenance, or improvements are required to maintain BPTC performance. Such modifications, maintenance, or improvements may include maintenance of filters, effluent diffuser, or other treatment processes, calibration or fine-tuning of the chlorination/dechlorination system or nitrification and denitrification processes, or modification of the source control program. A report that includes the findings of

the review, and any modifications, maintenance, or improvements that are required to fully implement BPTC shall be submitted to the Central Valley Water Board **by 1 January, each year**. The Discharger shall fully, and optimally implement BPTC at all times.

- c. **Salinity Evaluation and Minimization Plan (SEMP).** The Discharger shall prepare a Salinity Evaluation and Minimization Plan (SEMP) to identify sources of salinity in effluent from the Facility, and measures available to minimize the concentration and mass loading of salinity. The plan, including a proposed schedule to implement the identified minimization measures, shall be completed and submitted to the Regional Water Board within **1 year of the effective date of this Order** for approval by the Executive Officer. Following SEMP approval, the Discharger shall implement the applicable minimization measures according to the approved schedule.
- d. **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 III-8.00.) Based on annual whole effluent chronic toxicity testing performed by the Discharger from December 2006 through December 2008, the discharge does not have reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a Toxicity Reduction Evaluation (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 a pattern of 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 a pattern of 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 a pattern of 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 spaced every 2 weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001*,

March 1991 (TSD). The TSD at page 118 states, “EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.” Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern 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.

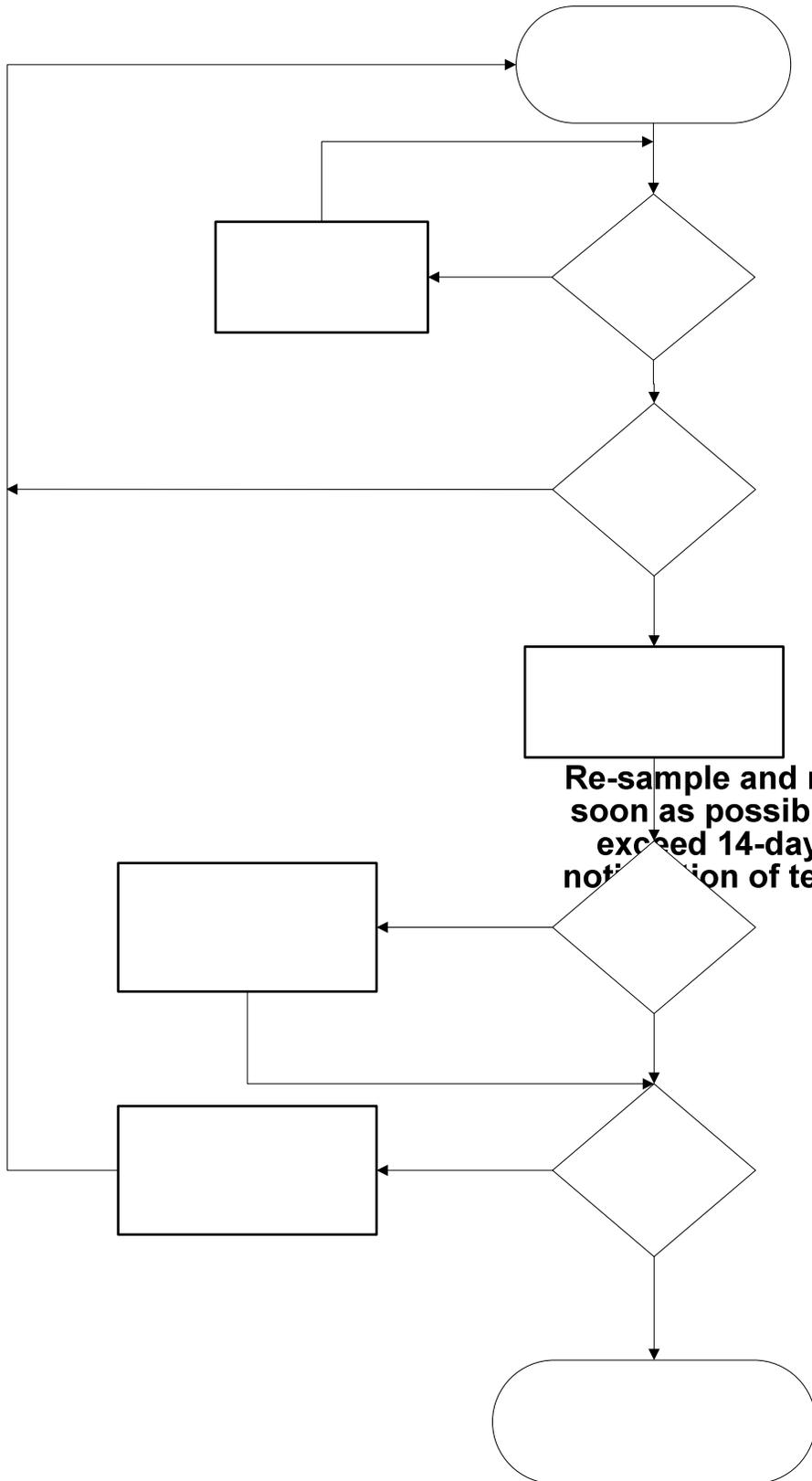
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

**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/833B-99/002), August 1999.
- *Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures*, Second Edition, EPA 600/6-91/005F, 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**



**Regul  
Toxicity**

**Test A  
Criteri**

No

**Monit  
Ex**

No

### **3. Best Management Practices and Pollution Prevention – Not Applicable.**

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

- a. **Turbidity.** Operations 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 organisms. The tertiary treatment process is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period; and an instantaneous maximum of 10 NTU.

### **5. Special Provisions for Municipal Facilities (POTWs Only)**

- a. **Pretreatment Requirements. If Applicable.**
  - i. The Federal Clean Water Act, Section 307(b), and Federal Regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.
  - ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or USEPA may take enforcement actions against the Discharger as authorized by the CWA.

### **6. Other Special Provisions**

- a. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify any succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.

## 7. Compliance Schedules – Not Applicable.

## VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (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 direct mailing, internet posting, and physical posting at the Facility, county courthouse or city hall, and the local U.S. Post Office (if allowed).

### B. Written Comments

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 of the Central Valley Water Board at the address listed above on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, written comments should be received at the Central Valley Water Board offices **by 5:00 p.m. on 25 April 2010.**

### 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: 26/27/28 May 2010  
Time: 8:30 am  
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 and venues may change. Our Web address is <http://www.waterboards.ca.gov/rwqcb5/> where you can access the current agenda for changes in dates and locations.

#### **D. Waste Discharge Requirements Petitions**

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Central Valley Water Board's action 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 (ROWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (530) 224-4845.

#### **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 Bryan Smith at (530) 226-3425.

G

**ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS**

**Table G-1. Summary of Reasonable Potential Analysis for Discharge Point No. 001**

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Antimony, Total Recoverable	ug/L	0.419	0.2 J	14.0	--	--	14	4,300	--	6	No
Arsenic, Total Recoverable	ug/L	1.15	0.8	10.0	340	150	--	--	10	10	No
Beryllium	ug/L	<0.1	<0.1	--	--	--	--	--	--	4	No
Cadmium	ug/L	0.027	0.04	0.3	2.3	1.52	--	--	0.33	--	No
Chromium (III), Total Recoverable	ug/L	1.4	11.9	126.9	1,064.3	126.85	--	--	--	50	No
Chromium (VI), Total Recoverable	ug/L	2	4 J	11.0	16.00	11.00	--	--	--	50	No
Copper, Total Recoverable	ug/L	39.9	7.7	5.6	7.97	5.60	1300	--	--	1,000	Yes
Cyanide	ug/L	20	<2	5.2	22	5.2	700	220,000	10.00	200	Yes
Lead, Total Recoverable	ug/L	0.6	1.2	1.5	7.97	5.60	--	--	7.81	15	No
Mercury, Total Recoverable	ug/L	0.00334	0.0113	0.1	38.14	1.49	0.05	0.05	--	2	No
Nickel, Total Recoverable	ug/L	2.2	14.9	31.5	282.9	31.46	610	4,600	--	100	No
Selenium, Total Recoverable	ug/L	0.4	0.4 J	5.0	--	5.00	--	--	--	20	No
Silver, Total Recoverable	ug/L	0.036	0.12 J	1.5	1.45	--	--	--	11.76	100	No
Thallium	ug/L	0.004	<0.2	1.7	--	--	1.70	6.30	--	2	No
Zinc, Total Recoverable	ug/L	128	18	21.31	72.20	72.20	--	--	21.31	5,000	Yes
Bromoform	ug/L	15.1	<0.1	4.3	--	--	4.3	360	--	80	Yes
Carbon Tetrachloride	ug/L	0.3	<0.05	0.25	--	--	0.25	4.4	--	0.5	Yes
Chlorodibromomethane	ug/L	30.1	0.1 J	0.401	--	--	0.401	34	--	80	Yes
Chloroform	ug/L	58.3	<0.04	--	--	--	--	--	--	80	No
Dichlorobromomethane	ug/L	22.5	0.06 J	0.56	--	--	0.56	46	--	80	Yes
Bis (2-Ethylhexyl) Phthalate	ug/L	3	<0.7	1.8	--	--	1.8	5.9	--	4	Yes
Butylbenzyl Phthalate	ug/L	0.2	<0.4	3,000	--	--	3,000	5,200	--	--	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Diethyl Phthalate	ug/L	0.2	<0.4	23,000	--	--	23,000	120,000	--	--	No
Aldrin	ug/L	0.043	<0.002	0.00013	--	3	0.00013	0.00014	--	--	Maybe
Beta-BHC	ug/L	0.031	<0.002	0.014	--	--	0.014	0.046	--	--	Maybe
Gamma-BHC	ug/L	0.024	<0.005	0.019	--	0.95	0.019	0.063	--	--	Maybe
Ammonia Nitrogen, Total (as N)	mg/L	NA	NA	1.72	2.14 <sup>1</sup>	1.72 <sup>4</sup>	--	--	--	--	Yes <sup>5</sup>
Electrical Conductivity @ 25°C	umhos/cm	495	243	700	--	--	--	--	700	900	No
Nitrate Nitrogen, Total (as N)	mg/L	88	0.24	10	--	--	--	--	--	10	Yes

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

Footnotes:  
 (1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average  
 (2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.  
 (3) The chronic criterion for the protection of freshwater aquatic life of 87 ug/L may not be applicable because receiving water conditions are not similar to those under which the criterion was developed. The discharge does exhibit reasonable potential to exceed the acute criterion for the protection of freshwater aquatic life and the secondary MCL for aluminum.  
 (4) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.  
 (5) Untreated domestic wastewater contains ammonia. 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. Therefore, ammonia in the discharge has a reasonable potential to exceed the freshwater aquatic life criteria for ammonia.  
 (6) Reserved.  
 (7) Water Quality for Agriculture.  
 (8) There is no reasonable potential for these parameters when evaluating data based on an annual average basis.  
 (9) Background concentration greater than criteria. Contaminant not detected in effluent.