

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

**CENTRAL VALLEY REGION**

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**ORDER NO. R5-2008-XXXX  
NPDES NO. CA0078999**

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

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

**Table 1. Discharger Information**

<b>Discharger</b>	City of Colusa
<b>Name of Facility</b>	Wastewater Treatment Plant
<b>Facility Address</b>	2820 Will S. Green Rd., Colusa, CA 95932, Colusa County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a <b>minor</b> discharge.	

The discharge by the City of Colusa 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	wastewater	39°, 10', 50" N	122°, 01', 48" W	Unnamed tributary to Powell Slough

**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>50 days after adoption date of the Order</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 Order expiration date</b>

IT IS HEREBY ORDERED, that Order No. R5-2002-0020 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the 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>**.

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PAMELA C. CREEDON, Executive Officer

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**I. FACILITY INFORMATION**

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

**Table 4. Facility Information**

<b>Discharger</b>	City of Colusa
<b>Name of Facility</b>	Wastewater Treatment Plant
<b>Facility Address</b>	2820 Will S. Green Road
	Colusa, CA 95932
	Colusa County
<b>Facility Contact, Title, and Phone</b>	Frank Garofalo, Water/Sewer Superintendent, (530) 458-2032
<b>Mailing Address</b>	SAME
<b>Type of Facility</b>	Publicly Owned Treatment Works
<b>Facility Design Flow</b>	0.7 million gallons per day (average dry weather flow)

**II. FINDINGS**

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

**A. Background.** The City of Colusa (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2002-0020 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078999. The Discharger submitted a Report of Waste Discharge, dated 30 August 2006, and applied for an NPDES permit renewal to discharge up to 0.7 million gallons per day (mgd) of treated wastewater from the wastewater treatment plant, hereinafter Facility. The application was deemed complete on 15 February 2007.

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 wastewater treatment plant. The existing equivalent-to-secondary treatment system consists of six un-aerated stabilization ponds, four effluent storage ponds, overland flow, and chlorine disinfection and sulfur dioxide dechlorination. The Discharger is currently upgrading the pond treatment system to a tertiary treatment facility, with the proposed initiation of operation date of August 2008. The upgraded facility will include a “Bio-lac” secondary aeration process, tertiary filtration, ultraviolet (UV) disinfection system, sludge storage basins, and daily and monthly equalization storage ponds. The existing pond infrastructure remaining after the facility upgrade may be used for emergency storage purposes.

Treated wastewater is discharged from Discharge 001 (see table on cover page) to an unnamed tributary to Powell Slough, a water of the United States, and a tributary to the Colusa Basin Drain within the Colusa Basin Hydrologic Unit. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the upgraded Facility proposed to be in operation in August 2008.

**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 Regional 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 I are also incorporated into this Order.

The effluent water quality data used for the development of the effluent limitations in this Order reflects the quality of the treated wastewater from the equivalent-to-secondary pond system that is being replaced with an advanced secondary and tertiary treatment facility. Due to the current effluent data not being representative of the quality of tertiary treated wastewater after the August 2008 initiation of operation date of the newly upgraded facility, this Order contains constituent studies to update the data set to better address water quality issues associated with the effluent from the upgraded facilities at a later date.

**E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit renewal is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

**F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)<sup>1</sup> 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 Part 133 and Best Professional Judgment (BPJ) in accordance with Part 125, section 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

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<sup>1</sup> All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

**G. Water Quality-based Effluent Limitations.** Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as technology equivalence requirements that are necessary to achieve water quality standards. The Regional 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.

Section 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) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

**H. Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), 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. The Basin Plan at page II-2.00 states that the "...beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not specifically identify beneficial uses for the unnamed tributary to Powell Slough, but does identify present and potential uses for the Colusa Basin Drain, to which Powell Slough, via the Colusa Trough, is tributary. These beneficial uses are as follows: agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; warm freshwater habitat; potential cold freshwater habitat; warm migration of aquatic organisms; warm spawning, reproduction, and/or early development; and wildlife habitat.

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. One exception is if the water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards. In accordance with Chapter IV of the Basin Plan, the Regional Water Board must adopt a formal Basin Plan amendment to grant an exception to Resolution No. 88-63. Until the Regional Water Board adopts a Basin Plan Amendment for an exception, and the State Water Board and Office of Administrative Law approve the Basin Plan Amendment, the receiving

water is considered to be suitable or potentially suitable for municipal or domestic supply in accordance with State Water Board Resolution No. 88-63. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to the unnamed tributary to Powell Slough are as follows:

**Table 5. Basin Plan Beneficial Uses**

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Unnamed tributary to Powell Slough	<u>Existing:</u> Municipal and domestic supply (MUN); Agricultural (AGR); Contact water recreation (REC-1); Warm freshwater habitat (WARM); Migration of Aquatic Organisms (MIGR); Spawning, reproduction, and/or early development (SPWN); Wildlife habitat (WILD) <u>Potential:</u> Cold freshwater habitat (COLD)

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.” The Colusa Basin Drain is listed as a WQLS for azinphos-methyl, carbofuran/furadan, diazinon, group A pesticides, malathion, methyl parathion, molinate/odram, and unknown toxicity in the 303(d) list of impaired water bodies. Requirements of this Order implement the Basin Plan.

- I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty 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 Regional 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 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 that 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 includes compliance schedules, interim effluent limitations and discharge specifications for effluent limitations in which the Discharger is not able to comply. A

five year compliance schedule is included in this Order for effluent limitations associated with the new and/or more stringent effluent limitations based on the newly interpreted MUN beneficial use designation of the receiving waters in accordance with State Water Board Resolution No. 88-63. The Basin Plan allows for a compliance schedule of up to ten years. The Discharger may choose to seek a Basin Plan Amendment to de-designate the MUN use from the receiving water, and may need a compliance schedule greater than five years. The Regional Water Board will consider extending the compliance schedule as necessary to allow time to complete the Basin Planning process if that is the Discharger's selected compliance option. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) and 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 C.F.R. § 131.21; 65 Fed. Reg. 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.
- M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD<sub>5</sub> and TSS. The water quality-based effluent limitations consist of restrictions on turbidity and pathogens. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD, TSS, turbidity and pathogens to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

Water quality-based effluent limitations 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 water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations 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 section 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.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 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 Regional 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 section 131.12 and State Water Board Resolution No. 68-16.
- O. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 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 where limitations may be relaxed. All effluent limitations in this Order, with the exception of aluminum limitations, are at least as stringent as the effluent limitations in the previous Order. New information, as discussed in the applicable sections of Attachment F of this Order, technically justifying a less stringent aluminum effluent limitation, became available after the adoption of the aluminum effluent limitations in previous Order No. R5-2002-0020. The availability of new information technically justifying a limitation to be relaxed is in accordance with State and federal anti-backsliding provisions.
- 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. Salinity Limitations.** This Order contains interim effluent limitations for electrical conductivity (EC) that are to remain in effect for the term of the Order. This Order requires the Discharger to study appropriate EC, sodium, and chloride levels to protect agricultural beneficial use in areas irrigated with water from the tributary to Powell Slough downstream of the tributary, and the Colusa Basin Drain in the vicinity of the discharge. A final EC effluent limitation will be included in the subsequent renewal of this Order. Final chloride, and/or sodium effluent limitations may also be included in the subsequent renewal of the Order if they are determined to have reasonable potential and cannot be adequately regulated by the EC effluent limitation.

- R. Monitoring and Reporting.** Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional 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.
- S. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional 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.
- T. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, V.B, and VI.C. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- U. Notification of Interested Parties.** The Regional 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.
- V. Consideration of Public Comment.** The Regional 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.

### 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.

### IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

#### A. Effluent Limitations – Discharge Point 001

##### 1. Final Effluent Limitations – Discharge Point EFF-001

**Upon the effective date of this Order**, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

- a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

**Table 6. Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	10	15	20		
	lbs/day <sup>1</sup>	58	88	120		
Total Suspended Solids	mg/L	10	15	20		
	lbs/day <sup>1</sup>	58	88	120		
pH	standard units				6.5	8.5
Turbidity	NTU	--	--	--	--	10
Settleable Solids	mL/L	0.1	--	0.2	--	--
Total Coliform Organisms	MPN/100 mL		--	--	--	240
Aluminum	ug/L	330	--	750	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Ammonia 1 April – 15 November	mg/L	0.60	--	1.2	--	--
	lbs/day <sup>1</sup>	3.5	--	7.0	--	--
Ammonia 16 November – 31 March	mg/L	1.2	--	2.1	--	--
	lbs/day <sup>1</sup>	7.0	--	12	--	--

<sup>1</sup> Based on a design flow of 0.7 million gallons per day (mgd).

- b. **Average Dry Weather Flow.** The Average Dry Weather Flow shall not exceed 0.7 million gallons per day.
- c. **Percent Removal:** The average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.
- d. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
  - i. 70%, minimum for any one bioassay; and
  - ii. 90%, median for any three consecutive bioassays.
- e. **Aluminum.** Each calendar year, the annual average effluent total aluminum concentration shall not exceed 200 µg/L.
- f. **Iron.** Each calendar year, the annual average total recoverable iron concentration in the effluent shall not exceed 300 µg/L.
- g. **Manganese.** Each calendar year, the annual average total recoverable manganese concentration in the effluent shall not exceed 50 µg/L.
- h. **Mercury.** The total monthly mass discharge of total mercury shall not exceed 0.0082 lbs/month.
- i. **Total Residual Chlorine.** Effluent total residual chlorine shall not exceed:
  - i. 0.01 mg/L, as a 4-day average;
  - ii. 0.02 mg/L, as a 1-hour average;
- j. **Turbidity.** Effluent turbidity shall not exceed:
  - i. 2 NTU, as a daily average; and
  - ii. 5 NTU, more than 5% of the time within a 24-hour period.
- k. **Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:
  - i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median; and
  - ii. 23 MPN/100 mL, more than once in any 30-day period.
- l. **Effective 1 May 2009,** the Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured

at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorodibromomethane	ug/L	0.41	--	0.82	--	--
Dichlorobromomethane	ug/L	0.56	--	1.1	--	--
		<b>Annual<sup>1</sup> Average</b>				
Trihalomethanes	ug/L	80				

<sup>1</sup> A calendar year average

- m. **Effective 18 May 2010**, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper	ug/L	8.1	--	13	--	--

- n. **Effective 1 August 2013**, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

- i. **Nitrate plus Nitrite.** The monthly average effluent concentration for nitrate plus nitrite shall not exceed 10 ug/L as N; and
- ii. **Foaming Agents (MBAS).** Each calendar year, the annual average effluent concentration for foaming agents (MBAS) shall not exceed 500 ug/L.

**2. Interim Effluent Limitations**

- a. **Electrical Conductivity.** Beginning the effective date of this Order, the effluent electrical conductivity shall not exceed 1500 umhos/cm as an annual average.
- b. **Copper.** Beginning the effective date of this Order, the maximum daily effluent concentration for copper shall not exceed 18.6 ug/L.
- c. **Nitrate plus nitrite.** Beginning the effective date of this Order, the maximum daily effluent concentration for nitrate plus nitrite shall not exceed 42 mg/L.

- d. **Foaming Agents (MBAS).** Beginning the effective date of this Order, the maximum daily effluent concentration of foaming agents shall not exceed 11.3 mg/L.

**B. Land Discharge Specifications – Discharge Points PND-007, PND-008, PND-009, PND-010**

1. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the CWC, to the treatment ponds is prohibited.
2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
3. As a means of discerning compliance with Land Discharge Specification 4, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.
4. Effluent into the ponds shall not have a pH less than 6.5 or greater than 8.5.

**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 the unnamed tributary to Powell Slough:

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:**
  - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
  - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

- c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5, raised above 8.5, nor changed by more than 0.5 units as a monthly average.
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.
  - g. Thiobencarb to be present in excess of 1.0 µg/L.
10. **Radioactivity:**
  - a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
  - b. Radionuclides to be present in excess of the 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 as a monthly average.
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 on a monthly average basis:
  - a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
  - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
  - c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
  - d. More than 10 percent where natural turbidity is greater than 100 NTUs.

## B. Groundwater Limitations

The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

1. Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTP to contain waste constituents in concentrations in excess of natural background quality or that listed below, whichever is greater:
  - a. Fecal coliform organisms median of 2.2 MPN/100 mL over any seven-day period.
    - i. Chemical constituents in concentrations that adversely affect beneficial uses, including the following:

Constituent	Units	Limitation
Total Dissolved Solids <sup>1</sup>	mg/L	450
Nitrate + Nitrite (as N)	mg/L	10

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

## 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 Code of Federal Regulations (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 Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional 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 Regional 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 Regional 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 five 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 Regional Water Board.
  - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional 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 Regional Water Board, become a condition of this Order.
- k. The Discharger, upon written request of the Regional 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 Regional 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 Regional 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 three 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 four years, the Discharger shall notify the Regional 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 Regional 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 Regional 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 Regional 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 Regional 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 Regional 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 Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

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

- 1. 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 section 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. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified if necessary. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Whole Effluent Toxicity.** 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.
- e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic 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 copper. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- f. **Carbofuran, Copper, Dioxin, Methoxychlor and Phthalate Esters Constituent Study.** This Order requires the Discharger to complete and submit a Constituent Study for carbofuran, copper, dioxin and congeners, methoxychlor and phthalate esters. Based on a review of the results of the Constituent Study, this Order may be reopened to add and/or modify final effluent limitations for carbofuran, copper, dioxin and congeners, methoxychlor and/or phthalate esters.
- g. **Salinity Study.** This Order requires the Discharger to complete and submit a report on the results of a site-specific investigation of appropriate salinity levels (including electrical conductivity (EC), total dissolved solids (TDS), boron, sodium, and chloride levels to protect agricultural beneficial use in areas that are irrigated with water from the unnamed tributary to Powell Slough, Powell Slough, and the Colusa Basin Drain in the vicinity of the discharge. Based on a review of the results of the Salinity Study, this Order may be reopened to add final effluent limitations for salinity parameters/constituents.
- h. **Municipal Beneficial Use De-designation.** If a Basin Plan Amendment to de-designated the municipal and domestic water supply (MUN) beneficial use designation of the receiving water (as an exception to Resolution No. 88-63) , is adopted by the Regional Water Board and approved by the State Water Board and the Office of Administrative Law, this Order may be reopened to modify the reasonable potential analysis and calculation of effluent limitations to exclude criteria based on the MUN beneficial use.

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

- a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity 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.

The Discharger has confirmed that previous toxicity events were caused due to high levels of ammonia and is currently upgrading the equivalent-to-secondary facility to an advanced biological and tertiary facility to reduce ammonia in the discharge. 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 for exceedance of the toxicity numeric monitoring trigger that occurs after the initiation of operation of the advanced biological treatment process.

- i. **Initial Investigative Toxicity Reduction Evaluation (TRE) Work Plan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at minimum:
- a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;
  - b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and
  - c) A discussion of who will conduct the Toxicity Identification Evaluation, if necessary (i.e. an in-house expert or outside contractor).
- 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 below. 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.

- 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.** The Discharger has confirmed that existing toxicity events were caused due to high levels of ammonia. The current facility upgrade project proposes to reduce ammonia in the effluent. If the monitoring trigger is exceeded during regular chronic toxicity testing conducted after the initiation of operation of the upgraded treatment process, 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 six-week period (i.e. one test every two weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:
  - a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is 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 Regional 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.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Regional 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 EPA guidance<sup>2</sup>.

- b. **Best Practicable Treatment or Control (BPTC) Evaluation Tasks.** If groundwater monitoring or sampling shows that any constituent concentrations are increased above background groundwater quality, the Discharger shall propose a work plan and schedule for providing BPTC as required by Resolution 68-16. The technical report describing the work plan and schedule shall contain a preliminary evaluation of each component and propose a time schedule for completing the comprehensive technical evaluation.

Following completion of the comprehensive technical evaluation, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on groundwater quality. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications (e.g., new or revised salinity source control measures, WWTP component upgrade and retrofit) to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable but in no case shall completion of the necessary modifications exceed four years past the Executive Officer's determination of the adequacy of the comprehensive technical evaluation, unless the schedule is reviewed and specifically approved by the Regional Water Board. The technical report shall include specific methods the Discharger proposes as a means to measure processes and assure continuous optimal performance of BPTC measures. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

<u>Task</u>	<u>Compliance Date</u>
1 -Submit technical report: work plan and schedule for comprehensive evaluation	<b>Within 6 months</b> following sampling results indicating constituent concentration(s) above background groundwater quality
2 -Commence comprehensive evaluation	<b>30 days</b> following Executive Officer approval of Task 1.
3 -Complete comprehensive evaluation	As established by Task 1 and/or 2 years following Task 2, whichever is sooner

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<sup>2</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.

<u>Task</u>	<u>Compliance Date</u>
4 -Submit technical report: comprehensive evaluation results	<b>60 days</b> following completion of Task 3.
5 -Submit annual report describing the overall status of BPTC implementation and compliance with groundwater limitations over the past reporting year	To be submitted in accordance with the MRP (Attachment E, Section X.D.1.)

- c. **Groundwater Monitoring.** To determine compliance with Groundwater Limitations V.B., the groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells down gradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. All monitoring wells shall comply with the appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC section 13801.

The Discharger, after one year of monitoring, shall characterize natural background quality of monitored constituents in a technical report, to be submitted by **15 months after the Adoption Date of this Order**. For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program (Attachment E, Section VIII.B.), the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10), and shall be based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration.

If the monitoring shows that any constituent concentrations are increased above background water quality, the Discharger shall submit a technical report by **2 years after the Adoption Date of this Order** describing the groundwater technical report results and critiquing each evaluated component of the Facility with respect to BPTC and minimizing the discharge's impact on groundwater quality. In no case shall the discharge be allowed to exceed the Groundwater Limitations. This Order may be reopened and additional groundwater limitations added.

- d. **Salinity Study:** The Discharger shall complete and submit a report on the results of a site-specific investigation of appropriate salinity levels (including EC, TDS, boron, sodium, and chloride levels) to protect agricultural beneficial use in areas irrigated with water from the unnamed tributary to Powell Slough, Powell Slough, and the Colusa Basin Drain in the vicinity of the discharge. The study

shall, at minimum, determine the sodium adsorption ratio of soils in the affected area, the effects of rainfall and flood-induced leaching, and background water quality. The study shall evaluate how climate, soil chemistry, background water quality, rainfall, and flooding affect salinity requirements. Based on these factors, the study shall recommend site-specific numeric values for EC, TDS, boron, sodium, and chloride that fully protect agricultural uses.

The Discharger shall comply with the following time schedule to complete the study:

<u>Task</u>	<u>Compliance Date</u>
Submit Work plan and Time Schedule	<b>Within 12 months</b> of Adoption Date of this Order
Complete Study	<b>Within three years</b> of Adoption Date of this Order
Submit Study Report	<b>Within three months</b> of completion of study

- e. **Constituent Study for Carbofuran, Copper and Hardness, Dioxin and congeners, Methoxychlor and Phthalate Esters** . For a one-year period beginning with the Effective Date of this Order, the Discharger shall conduct: (1) quarterly effluent monitoring of carbofuran, methoxychlor and phthalate esters for four consecutive quarters, (2) monthly effluent monitoring of copper and hardness for twelve consecutive months, and (3) twice-a-year effluent monitoring for dioxins and congeners for one year. The sampling for the six constituents shall be conducted at the monitoring location identified as EFF-001. The monitoring required in this constituent study shall be performed in accordance with the procedures described in Attachment G. Effluent hardness shall be measured at the same time copper samples are taken. The Discharger shall comply with the following time schedule in conducting the study:

<u>Task</u>	<u>Compliance Date</u>
Initiate Study – Conduct Effluent Monitoring	Effluent Monitoring to begin first day of the next calendar month following permit effective date
Complete Study	<b>12 months</b> after initiation of Study
Submit Study Report with Summary of all Monitoring Results	<b>Within 14 months</b> after Initiation of Study

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

- a. **Pollution Prevention Plan for Foaming Agents (MBAS) and Nitrate plus Nitrite.** The Discharger shall prepare and implement a pollution prevention plan for foaming agents and nitrate plus nitrite in accordance with CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet, Attachment F, VII.B.3.a. A work plan and time schedule for preparation of the pollution prevention plan shall be completed and submitted **within six months of the Adoption date of this Order** for approval by the Executive Officer. The Pollution Prevention Plan shall be completed and submitted to the Regional Water Board **within 12 months following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).
- b. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare and implement a salinity evaluation and minimization plan to address sources of salinity from the wastewater treatment system. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the Adoption Date of this Order** for approval by the Executive Officer.
- c. **Salinity Reduction.** The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the unnamed tributary to Powell Slough. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.).

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

- a. **Treatment/Storage Pond Operating Requirements.**
  - i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
  - ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

- iii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
  - b) Weeds shall be minimized.
  - c) Dead algae, vegetation, and debris shall not accumulate on the water surface.
- iv. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).
- v. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the non-irrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).

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

### **a. Pretreatment Requirements – N/A**

### **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 quality control 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 Groundwater Limitations 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 Groundwater Limitations 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 503. If the State Water Board and the Regional Water Board are given the authority to implement regulations contained in 40 CFR 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 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. The Discharger has applied for and has been approved for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

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 section 122.41(e)], report any non-compliance [40 CFR section 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR. section 122.41(d)].

- f. This permit, and the Monitoring and Reporting Program which is a part of this permit, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger is required to establish an electronic system for operator notification for continuous recording device alarms. For existing continuous monitoring systems, the electronic notification system shall be installed **within six months of adoption** of this permit. For systems installed following permit adoption, the notification system shall be installed simultaneously.

## 6. Other Special Provisions

- a. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected, or equivalent, for the Discharger to comply with the Department of Public Health Title 22-level effluent limitation in this Order.
- b. 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 Regional 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 Regional 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

- a. **Compliance Schedules for Final Effluent Limitations for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes.**
  - i. **By 1 May 2009**, the Discharger shall comply with the final effluent limitations for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes. On 30 January 2008, the Discharger submitted a

compliance schedule justification for chlorodibromomethane, dichlorobromomethane, and total trihalomethanes. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is less than one year, the requirements for the Discharger to submit annual progress reports and a Pollution Prevention Plan are not applicable.

- ii. **By 18 May 2010**, the Discharger shall comply with the final effluent limitations for copper. On XX May 2008, the Discharger submitted a compliance schedule justification for copper. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than one year, the Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)
- iii. **By 1 August 2013**, the Discharger shall comply with the final effluent limitations for foaming agents (MBAS) and nitrate plus nitrite. On 30 January 2008, the Discharger submitted a compliance schedule justification for foaming agents and nitrate plus nitrite. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than one year, the Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

## VII. COMPLIANCE DETERMINATION

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

- A. **BOD and TSS Effluent Limitations.** Compliance with the final effluent limitations for BOD and TSS required in sections IV.A.1 shall be ascertained by 24-hour composite samples. Compliance with effluent limitations for percent removal shall be calculated using the arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.
- B. **Aluminum Effluent Limitations.** Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by US EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
- C. **Total Mercury Mass Loading Effluent Limitations.** The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All monitoring data collected under the monitoring and reporting program, pretreatment program and any special studies shall be used for these calculations.
2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

- D. Average Dry Weather Discharge Flow Effluent Limitations.** The Average Dry Weather Discharge Flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the Average Dry Weather Discharge Flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (for example, July, August, and September).
- E. Mass Effluent Limitations.** Compliance with the mass effluent limitations will be determined during average dry-weather periods only when groundwater is at or near normal and runoff is not occurring.
- F. 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 seven days for which analyses have been completed. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period.
- G. Total Residual Chlorine Effluent Limitations.** Monitoring for chlorine residual or for dechlorination agent residual in the effluent is an appropriate method 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. 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.

## ATTACHMENT A – DEFINITIONS

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

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

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

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

**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.

**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 3 July 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 Regional 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 Regional 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.

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

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

where:

x is the observed value;

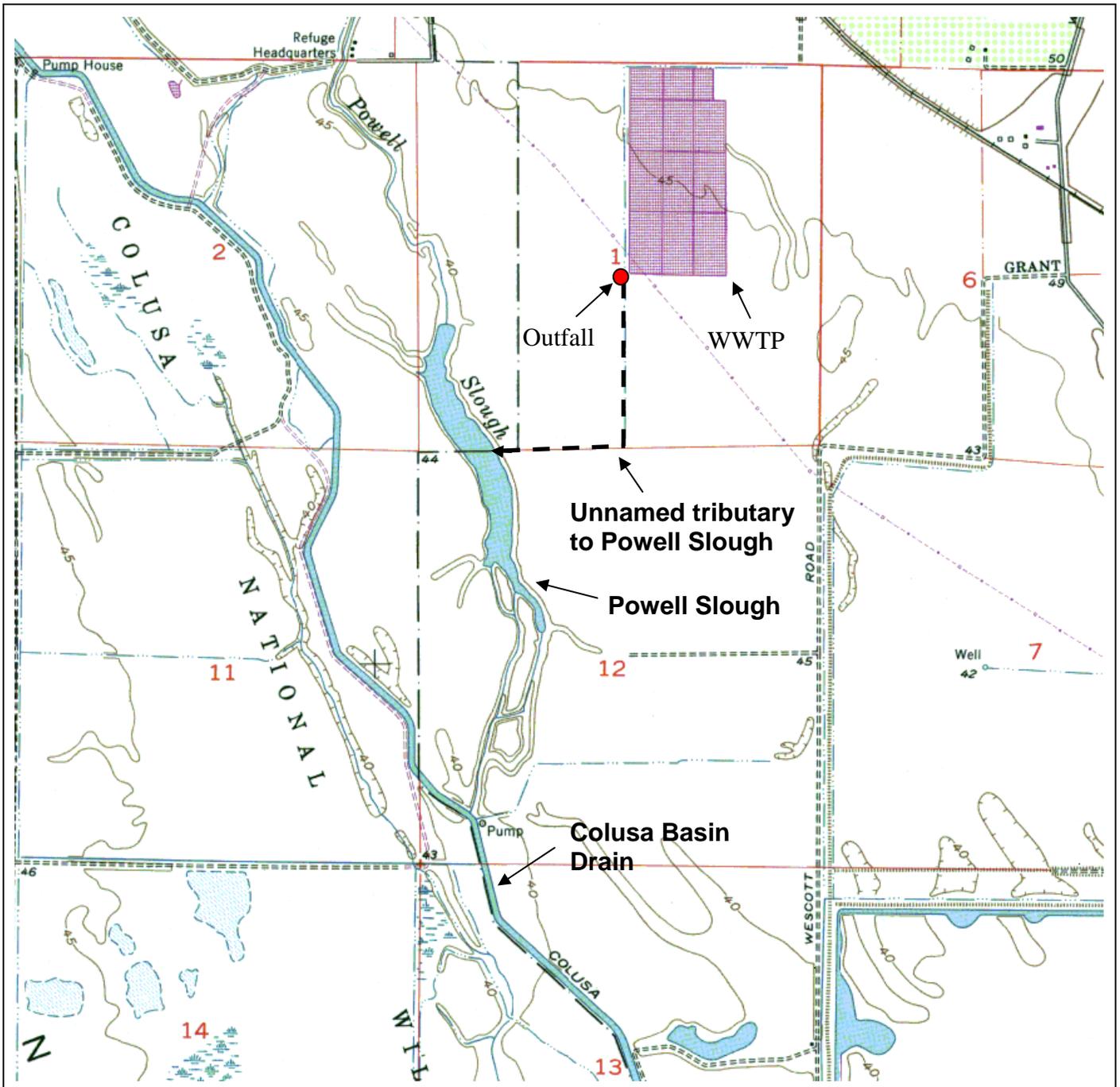
$\mu$  is the arithmetic mean of the observed values; and

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,

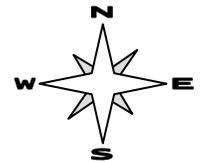
evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best 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**

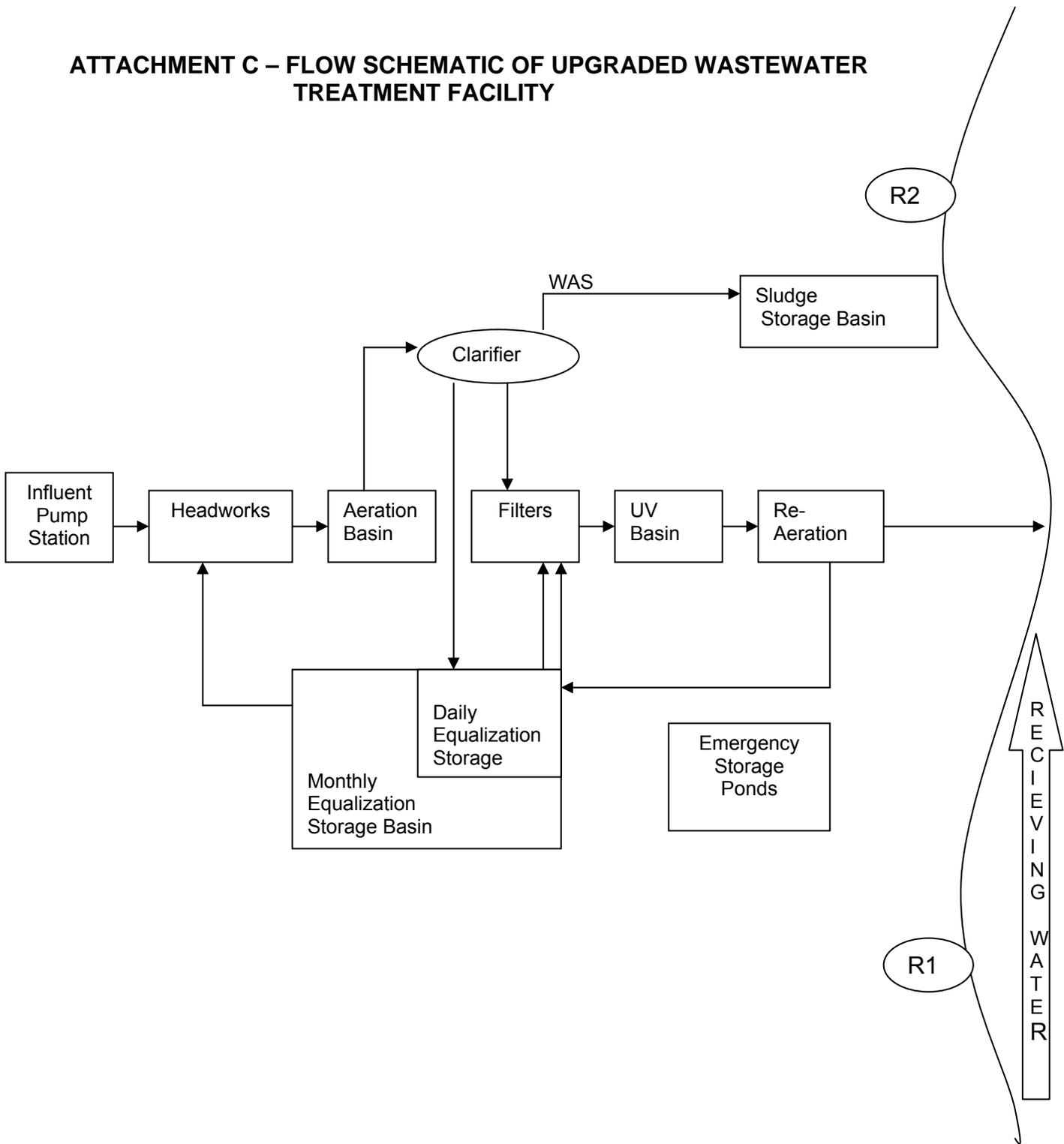


Drawing Reference:  
**COLUSA**  
U.S.G.S TOPOGRAPHIC MAP  
7.5 MINUTE QUADRANGLE  
*Photorevised 1973*  
*Not to scale*

**SITE LOCATION MAP**  
CITY OF COLUSA  
WASTEWATER TREATMENT PLANT  
COLUSA COUNTY



### ATTACHMENT C – FLOW SCHEMATIC OF UPGRADED WASTEWATER TREATMENT FACILITY



## **ATTACHMENT D –STANDARD PROVISIONS**

### **I. STANDARD PROVISIONS – PERMIT COMPLIANCE**

#### **A. Duty to Comply**

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

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

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

#### **C. Duty to Mitigate**

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

#### **D. Proper Operation and Maintenance**

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

#### **E. Property Rights**

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

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

## **F. Inspection and Entry**

The Discharger shall allow the Regional 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(1)(i).)
  - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
  - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
  - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
5. Notice
  - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)
  - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

## H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
  - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
  - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
  - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
  - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

## **II. STANDARD PROVISIONS – PERMIT ACTION**

### **A. General**

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

### **B. Duty to Reapply**

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

### **C. Transfers**

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

### III. STANDARD PROVISIONS – MONITORING

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

### IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 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 Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

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

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

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

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

## **V. STANDARD PROVISIONS – REPORTING**

### **A. Duty to Provide Information**

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional 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 Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

### **B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Regional 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 C.F.R. § 122.41(k).)

2. All permit applications shall be signed as follows:

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 C.F.R. § 122.22(a)(3).)

3. All reports required by this Order and other information requested by the Regional 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 C.F.R. § 122.22(b)(1));
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
  - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

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

### **C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in 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 Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

### **D. Compliance Schedules**

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

## **E. Twenty-Four Hour Reporting**

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
  - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
  - b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

## **F. Planned Changes**

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

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

### **G. Anticipated Noncompliance**

The Discharger shall give advance notice to the Regional 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 C.F.R. § 122.41(l)(2).)

### **H. Other Noncompliance**

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

### **I. Other Information**

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

## **VI. STANDARD PROVISIONS – ENFORCEMENT**

- A.** The Regional 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 Regional Water Board of the following (40 C.F.R. § 122.42(b)):

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

# ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional 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 this Regional Water Board.
- B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a non-certified 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 Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.
- C. Records of laboratories that perform sample analyses shall be retained by the Discharger as required by the Standard Provisions contained in Attachment D, Section D.IV.
- D. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Public Health. Laboratories that perform sample analyses shall be identified in all monitoring reports.
- E. 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.
- F. 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 (include Latitude and Longitude when available)
--	INF-001	Influent to the WWTP
001	EFF-001	Effluent Pump Station
--	RSW-001U	Unnamed tributary to Powell Slough, below the first upstream agricultural discharge (up to 50 feet upstream)
--	RSW-001D	Unnamed tributary to Powell Slough, above the first downstream agricultural discharge (up to 200 feet downstream)
--	RSW-002U	Powell Slough (250 feet upstream from the confluence of the unnamed tributary to Powell Slough with Powell Slough)
--	RSW-002D	Powell Slough, 400 feet downstream from the confluence of the unnamed tributary to Powell Slough with Powell Slough
--	RGW-001	North Groundwater Monitoring Well
--	RGW-002	South Groundwater Monitoring Well
--	RGW-003	East Groundwater Monitoring Well
--	RGW-004	West Groundwater Monitoring Well
--	PND-007	Pond 7
--	PND-008	Pond 8
--	PND-009	Pond 9
--	PND-010	Pond 10
--	SPL-001	Water Supply
--	BIO-001	Sludge Storage Basins

## III. INFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location INF-001

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

**Table E-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	<sup>2</sup>
Electrical Conductivity @25°C	µmhos/cm	Grab	Weekly	<sup>2</sup>
BOD 5-day 20°C	mg/L	24-hr Composite <sup>1</sup>	Twice Monthly	<sup>2</sup>
Total Suspended Solids	mg/L	24-hr Composite <sup>1</sup>	Twice Monthly	<sup>2</sup>

<sup>1</sup> 24-hour flow proportional composite

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

#### IV. EFFLUENT MONITORING REQUIREMENTS

##### A. Monitoring Location EFF-001

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

**Table E-3. Effluent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	1
Total Residual Chlorine <sup>2</sup>	mg/L	Grab	1/Day	1
Turbidity <sup>3</sup>	NTU	Meter	Continuous	1
BOD 5-day 20°C	mg/L lbs/day	24-hr Composite <sup>4</sup>	3/Week	1
pH	standard units	Grab <sup>5</sup>	3/Week	1
Total Coliform Organisms	MPN/100 mL	Grab <sup>5</sup>	3/Week	1
Total Suspended Solids	mg/L lbs/day	24-hr Composite <sup>4</sup>	3/Week	1
Ammonia (as N) <sup>6,7</sup>	mg/L lbs/day	Grab <sup>5</sup>	1/Week	1
Electrical Conductivity @ 25°C	µmhos/cm	Grab <sup>5</sup>	1/Week	1
Settleable Solids	mL/L	Grab <sup>5</sup>	1/Month	1
Temperature <sup>8</sup>	°F (°C)	Grab <sup>5</sup>	1/Week	1
Total Dissolved Solids	mg/L	Grab <sup>5</sup>	1/Week	1
Aluminum, Total recoverable <sup>9</sup>	µg/L	Grab <sup>5</sup>	1/Month	1
Chlorodibromomethane	µg/L	Grab <sup>5</sup>	1/Month	1
Copper	µg/L	Grab <sup>5</sup>	1/Month	1
Dichlorobromomethane	µg/L	Grab <sup>5</sup>	1/Month	1
Foaming Agents (MBAS)	mg/L	Grab <sup>5</sup>	1/Month	1
Iron	µg/L	Grab <sup>5</sup>	1/Month	1
Manganese	µg/L	Grab <sup>5</sup>	1/Month	1
Mercury, Total <sup>16</sup>	µg/L	Grab <sup>5</sup>	1/Month	Method 1631 <sup>21</sup>
Methylmercury	µg/L	Grab <sup>5</sup>	1/Month	Method 1630 <sup>21</sup>
Nitrate + nitrite	mg/L	Grab <sup>5</sup>	1/Month	1
Total Trihalomethanes <sup>10</sup>	µg/L	Grab <sup>5</sup>	1/Month	1
Hardness <sup>11</sup>	mg/L	Grab <sup>5</sup>	1/Quarter	1
Bis (2-ethylhexyl) phthalate	µg/L	Grab <sup>5</sup>	2/year	1
Standard Minerals <sup>14</sup>	mg/L	Grab <sup>5</sup>	1/year	1

<sup>1</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR section 136; for priority pollutants the methods must meet the lowest MLs specified in Appendix 4 of the SIP; where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.

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- <sup>2</sup> Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L. Samples shall be collected downstream of last chlorine addition, after de-chlorination. Monitoring for chlorine residual is not required after the Discharger submits certification to the Regional Water Board that the use of its chlorine-based disinfection system and the use of other chlorine-containing agents in its treatment process has been ceased. After certification of non-use of chlorine, the Discharger must, however, immediately restart monitoring for chlorine residual upon any unplanned use of chlorine in the treatment process.
- <sup>3</sup> Turbidity shall be monitored beginning on the effective date of the final turbidity effluent limitation in this Order or when filtration is added to the treatment process, whichever is sooner.
- <sup>4</sup> 24-hour flow proportioned composite.
- <sup>5</sup> Grab samples shall not be collected at the same time each day.
- <sup>6</sup> Concurrent with biotoxicity monitoring.
- <sup>7</sup> Temperature and pH data shall be collected on the same date and time as the ammonia sample.
- <sup>8</sup> Concurrent with receiving surface water sampling.
- <sup>9</sup> Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
- <sup>10</sup> Total trihalomethanes is the sum of bromoform, dichlorobromomethane, chloroform and chlorodibromomethane.
- <sup>11</sup> Hardness samples to be taken concurrently with metals samples.
- <sup>12</sup> Quarterly monitoring for four consecutive quarters during the third year of the permit term.
- <sup>13</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>14</sup> The constituents listed in Attachment G shall be monitored at least once during the third year of the permit term. Additional constituents to be monitored include diazinon, molinate, azinphos-methyl, malathion, and methyl parathion.
- <sup>15</sup> Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/l for methylmercury and 0.2 ng/l for total mercury.

## 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 fathead minnows (*Pimephales promelas*).
  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 semi-annual three species chronic toxicity testing.
  2. Sample Types – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001U sampling location, as identified in the Monitoring and Reporting Program.
  3. Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
  4. Test Species – Chronic toxicity testing measures sublethal (e.g. reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
    - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
    - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
    - The green alga, *Selenastrum capricornutum* (growth test).

5. 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 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic or the receiving water body is dry upstream of the discharge). 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.
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.C.2.a.iii.)

**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

1. If receiving water is toxic, laboratory water will be used for the dilution series as described in EPA Method 821-R-02-013 Section 7.12.

- C. **WET Testing Notification Requirements.** The Discharger shall notify the Regional Water Board within 24-hrs 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 Regional 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. (Note: items a through c, above, are only required when testing is performed using the full dilution series.)

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 (If applicable):
  - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
  - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
  - c. Any information on deviations or problems encountered and how they were dealt with.

## VI. LAND DISCHARGE MONITORING REQUIREMENTS – N/A

## VII. RECLAMATION MONITORING REQUIREMENTS – N/A

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

#### A. Monitoring Location RSW-001U, RSW-001D, RSW-002U, RSW-002D

1. The Discharger shall monitor the unnamed tributary to Powell Slough and Powell Slough at RSW-001U, RSW-001D, RSW-002U, RSW-002D as follows:

**Table E-5. Receiving Water Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH <sup>1</sup>	Standard Units	Grab	1/week	
Temperature <sup>1</sup>	°F (°C)	Grab	1/week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/month	
Dissolved Oxygen	mg/L	Grab	1/month	
Hardness	mg/L	Grab	1/quarter	
Turbidity	NTU	Grab	1/quarter	
Radionuclides	PCI/L	Grab	1/year	
Priority Pollutants and Additional Constituents <sup>2,3,4,5,6,7</sup> (See Attachment G)	µg/L	As Appropriate <sup>5, 20</sup>	1/permit term	

<sup>1</sup>. Temperature and pH data shall be collected on the same date and time as the ammonia sample.

<sup>2</sup>. Concurrent with the RSW-001U receiving surface water sampling.

<sup>3</sup>. The constituents listed in Attachment G shall be monitored at least once during the third year of the permit term. Additional constituents to be monitored include diazinon, molinate, azinphos-methyl, malathion, and methyl parathion.

<sup>4</sup>. Priority Pollutants is defined as USEPA Priority Pollutants and consists of the constituents listed in the most recent National Toxics Rule and California Toxics Rule.

<sup>5</sup>. For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest ML published in Appendix 4 of the 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.

<sup>6</sup>. Concurrent with effluent hardness, pH, and temperature sampling.

<sup>7</sup>. All peaks are to be reported, along with any explanation provided by the laboratory.

2. In conducting the receiving water sampling, a separate log shall be kept of the receiving water conditions. Attention shall be given to the presence or absence of:
  - a. Floating or suspended matter
  - b. Discoloration
  - c. Bottom deposits
  - d. Aquatic life
  - e. Visible films, sheens, or coatings
  - f. Fungi, slimes, or objectionable growths
  - g. Potential nuisance conditions
  - h. Flow Direction
  - i. Upstream Conditions
3. Notes on the receiving water conditions shall be summarized in the monitoring report.

**B. Monitoring Location RGW-001, RGW-002, RGW-003, RGW-004**

1. The Discharger shall monitor groundwater at RGW-001, RGW-002, RGW-003, RGW-004 as follows:

**Table E-6. Groundwater Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	feet	Grab	1/month	
Groundwater Elevation	feet	Grab	1/month	
Nitrate (as N)	mg/L	Grab	1/month	
pH	Standard Units	Grab	1/month	
Temperature	°F (°C)	Grab	1/month	
Total Dissolved Solids	mg/L	Grab	1/month	
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/month	
Fecal Coliform Organisms	MPN/100 mL	Grab	1/month	

**IX. OTHER MONITORING REQUIREMENTS**

**A. Pond monitoring**

**1. Monitoring Location PND-007, PND-008, PND-009, PND-010**

1. This Discharger shall monitor the ponds at monitoring locations PND 007, PND-008, PND-009, and PND-010 as follows when the pond(s) are in operation and/or contain wastewater:

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

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	feet	Grab	1/day	
Odors	Observation	--	1/week	
Levee Condition	Observation	--	1/week	
pH	pH Units	Grab	1/week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	
Nitrate (as N)	mg/L	Grab	1/month	
Nitrite (as N)	mg/L	Grab	1/month	
TKN (as N)	mg/L	Grab	1/month	
Ammonia (as N)	mg/L	Grab	1/month	
Dissolved Oxygen	mg/L	Grab	1/month	

**B. Biosolids**

**1. Monitoring Location BIO-001**

- a. A composite sample of sludge shall be collected annually when sludge is removed from the ponds for disposal in accordance with USEPA’s POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for metals listed in Title 22.
- b. Sampling records shall be retained for a minimum of **five years**. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.
- c. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analyses of sludge sample(s). Suggested methods for analysis of sludge 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 sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in USEPA’s POTW Sludge Sampling and Analysis Guidance Document, August 1989.

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

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids	mg/L	Grab	1/year	
Electrical Conductivity @ 25°C <sup>1</sup>	µmhos/cm	Grab	2/year	
Standard Minerals <sup>2</sup>	mg/L	Grab	1/year	

<sup>1</sup>. If the water supply is from more than one source, the Electrical Conductivity shall be reported as a weighted average and include copies of supporting calculations.

<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)

## 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 Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule. The Discharger shall report to the Regional 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.
4. **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 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.
5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
  - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

## B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional 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 Regional 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. Monitoring results from monitoring required in the third year of the permit term shall be submitted in the following annual monitoring report and in the Discharger’s subsequent Report of Waste Discharge for consideration of future NPDES permit renewal or modification.
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 Regional 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  
NPDES Compliance and Enforcement Unit  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670-6114

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

**Table E-9. Monitoring Periods and Reporting Schedule**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Daily	First Day of Calendar Month following Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
Monthly	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	Submit with monthly SMR

Quarterly	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	Submit with quarterly SMR
Annually	1 January following (or on) permit effective date	1 January through 31 December	30 days from the end of the monitoring period
Third Year of Permit Term	1 January following three years after permit effective date	1 January through 31 December	Submit with annual SMR and subsequent Report of Waste Discharge

**C. Other Reports**

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

**Table E-10. Reporting Requirements for Special Provisions Progress Reports**

Special Provision	Reporting Requirements
Pollution Prevention Plan for foaming agents (MBAS) and nitrate plus nitrite	1 February, annually, after approval of work plan
Salinity Reduction Annual Reports	1 February, annually
Best Practicable Treatment or Control (BPTC) Evaluation Tasks	1 February, annually, following completion of Task 4 of BPTC Evaluation Compliance Schedule

2. 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.
3. 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.

4. **Annual Operations Report.** By 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
  - a. The names, certificate grades, 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 Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

## ATTACHMENT F – FACT SHEET

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## ATTACHMENT F – FACT SHEET

As described in section II 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>	
<b>Discharger</b>	City of Colusa
<b>Name of Facility</b>	Wastewater Treatment Plant
<b>Facility Address</b>	2820 Will S. Green Road
	Colusa, CA 95932
	Colusa County
<b>Facility Contact, Title and Phone</b>	Frank Garofalo, Water/Sewer Superintendent, (530) 458-2032
<b>Authorized Person to Sign and Submit Reports</b>	Frank Garofalo, Water/Sewer Superintendent, (530) 458-2032
<b>Mailing Address</b>	SAME
<b>Billing Address</b>	SAME
<b>Type of Facility</b>	POTW
<b>Major or Minor Facility</b>	Minor
<b>Threat to Water Quality</b>	2
<b>Complexity</b>	B
<b>Pretreatment Program</b>	N
<b>Reclamation Requirements</b>	N/A
<b>Facility Permitted Flow</b>	0.7 million gallons per day (average dry weather flow)
<b>Facility Design Flow</b>	0.7 million gallons per day (average dry weather flow)
<b>Watershed</b>	Sacramento River Watershed
<b>Receiving Water</b>	Unnamed tributary to Powell Slough
<b>Receiving Water Type</b>	inland surface water

**A.** The City of Colusa (hereinafter Discharger) is the owner and operator of the Colusa Wastewater Treatment Plant (hereinafter WWTP or Facility), a POTW.

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

- B.** The Facility discharges wastewater to an unnamed tributary to Powell Slough, a water of the United States, and was previously regulated by Order R5-2002-0020. The terms and conditions of the previous Order No. R5-2002-0020 will remain in effect until new permit requirements become effective pursuant to this Order.
- C.** The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 30 August 2006. A pre-permitting inspection was conducted on 25 February 2008 to (1) confirm the construction progress of the new advanced secondary and tertiary treatment facility which is scheduled to be completed and in operations in August 2008, and (2) collect information necessary to develop permit limitations and conditions for this Order.

## **II. FACILITY DESCRIPTION**

The Discharger provides sewerage service for the City of Colusa and serves a population of approximately 5,670 and is currently constructing a new treatment process to provide advanced secondary and tertiary treatment to its municipal wastewater. To assist in financing the current treatment plant upgrade, the City of Colusa’s residential sewer rates were recently increased by \$20 and are currently \$57 per month.

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

The WWTP being upgraded consists of equivalent-to-secondary treatment system that contains stabilization ponds, overland flow system, chlorine disinfection and dechlorination. Current effluent flows from the WWTP are about 0.5 million gallons per day (mgd), with about 15 percent of the flow from inflow and infiltration. The new treatment system upgrades currently under construction includes new headworks, and advanced secondary Bio-lac biological treatment process, tertiary filtration, ultraviolet disinfection, and re-aeration. Sludge will be stored in sludge storage basins and hauled annually to the Norcal Systems Inc., Ostrom Road Landfill located in Wheatland.

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

1. The Facility is located in Section 1, T15N, R2W, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point 001 to an unnamed tributary of Powell Slough, a water of the United States *and a tributary to the Colusa Basin Drain* at a point latitude N39°, 10', 50" N and longitude 122°, 01', 48" W.
3. The unnamed tributary to Pough Slough and Pough Slough are tributary to the Colusa Basin Drain. The Colusa Basin Drain discharges to either the Sacramento

River at Knights Landing or may be diverted to the Yolo Bypass through the Knights Landing Ridge. The Colusa Basin Drain and the Yolo Bypass are specifically not designated as having MUN beneficial use. The Sacramento River has MUN beneficial use. Both the Yolo Bypass and the Sacramento River discharge to the Sacramento/San Joaquin Delta.

4. In accordance with the State Water Resources Control Board Resolution No. 88-63 (Drinking Water Policy), the unnamed tributary to Pough Slough and Pough Slough have MUN beneficial use.
5. The discharge is located in the Colusa Basin Hydrologic Unit in the Sycamore-Sutter Hydrologic Area. The discharge is within the Sacramento River Watershed.
6. Powell Slough and the Conaway Ranch Toe Drain are used for agricultural irrigation. The State of California Department of Water Resources (DWR) 2003 Colusa County Land Use Survey shows crops in the vicinity of the discharge include rice; grain/hay, melons, squash and/or cucumber, walnuts, corn, dry beans, onions/garlic, and tomatoes, with rice being the predominant crop.
7. Approximately two to three miles downstream of the discharge, the receiving water discharges into the Colusa Trough, which borders the Colusa National Wildlife Refuge. The Colusa National Wildlife Refuge contains wetland impoundments and is an important area for migrating waterfowl. The DWR 2003 Colusa County Land Use Survey shows many acres of seasonal and permanent duck marsh along the Colusa Basin Drain and Powell Slough. The refuge is used for wildlife viewing and hunting of waterfowl and pheasant from mid-October through mid-January.

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

Effluent limitations/Discharge Specifications contained in the existing Order for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order are as follows:

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

Parameter	Units	Effluent Limitation			Monitoring Data January 2004 - December 2006		
		Average Monthly	Average Weekly	Average Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (BOD)	mg/L	10 <sup>2</sup>	15 <sup>2</sup>	20 <sup>2</sup>	5	5	5
	lbs/day	42	63	84	5	5	5
Total Suspended Solids (TSS)	mg/L	10 <sup>2</sup>	15 <sup>2</sup>	20 <sup>2</sup>	5	5	5
	lbs/day	42	63	84	5	5	5
Settleable Solids	mL/L	0.1		0.2	0.01		0.02
Ammonia	mg/L	Floating			12.1		
	lbs/day	<sup>3</sup>		<sup>3</sup>			

Parameter	Units	Effluent Limitation			Monitoring Data January 2004 - December 2006		
		Average Monthly	Average Weekly	Average Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Copper	ug/L	Floating		Floating	13.7	--	13.7
	lbs/day	<sup>3</sup>		<sup>3</sup>			

1. 5-day, 20°C biochemical oxygen demand (BOD)
2. To be ascertained by a 24-hour composite
3. 1-hr limitation
4. The mass limit (lb/day) shall be equal to the concentration limit multiplied by the design flow of 0.90 mgd and the unit conversion factor of 8.345
5. During this time period, the limitations in the permit were less stringent

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

Parameter	Units	Effluent Limitation			Monitoring Data January 2003 - December 2005		
		Average 4-day	Average 1-Hour	Instantaneous Maximum	Highest Average 4-day Discharge	Highest Average 1-hour Discharge	Highest Discharge
Total Coliform Organisms <sup>1</sup>	MPN/100 mL			240			
Turbidity <sup>2</sup>	NTU			10			
Total Residual Chlorine	mg/L	0.011	0.019				
	lbs/day	0.083	0.14				
Ammonia	mg/L	Floating	Floating		14.0	14.0	
	lbs/day	<sup>3</sup>	<sup>3</sup>				
Aluminum	ug/L	87	750				
	lbs/day	0.65	5.6				

1. The total coliform organisms concentration shall not exceed 23 MPN/100 mL more than once in any 30-day period. The 7-day median shall not exceed 2.2 MPN/100 mL.
2. The turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period and the average daily turbidity shall not exceed 2 NTU.
3. The mass limit (lb/day) shall be equal to the concentration limit multiplied by the design flow of 0.90 mgd and the unit conversion factor of 8.345

- Wastewater shall be oxidized, coagulated, and filtered, or equivalent treatment provided after 31 January 2007.
- The arithmetic mean of 20°C BOD (5-day) and of total suspended solids in effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal) after 31 January 2007.
- Survival of aquatic organisms in 96-hour bioassays of undiluted effluent shall be no less than:

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

## **D. Compliance Summary**

Waste Discharge Requirements Order No. R5-2002-0020 and Cease and Desist Order No. R5-2002-0021 required the WWTP be upgraded to provide tertiary treatment by 1 February 2007 and provided a time schedule for the Discharger to comply with aluminum and ammonia limitations by 1 February 2007. The Discharger submitted a request with technical justification for an extension to this compliance date. Time Schedule Order No. R5-2007-0074, adopted June 2007, provides a time schedule for compliance with BOD, TSS, total coliform organisms, turbidity, ammonia, copper, and aluminum effluent limitations. (The current WWTP upgrade will include nitrifying activated sludge process, filtration, and ultra violet light disinfection that provides the necessary treatment for the Discharger to comply with the above limitations.) Administrative Civil Liability Order No. R5-2003-0504 was issued on 29 July 2003 for violations, including violation of biochemical oxygen demand, total chlorine residual, total coliform organisms, settleable solids, and total suspended solids. The Discharger entered into a Stipulated Agreement to spend \$114,000 toward a project to upgrade the WWTP to achieve compliance with the existing requirements.

## **E. Planned Changes**

The Discharger is upgrading the WWTP, which will include the addition of activated sludge, coagulation/filtration, flow equalization, re-aeration, and ultraviolet disinfection to the treatment process. The overland flow system and ponds 1 through 4 and pond 6 will be taken out of service. Pond 5 will be converted into a daily and monthly equalization basin. One of the remaining ponds will be converted into dual sludge storage basin. The remaining ponds are being retrofitted for emergency storage ponds. The existing chlorine contact basin will be replaced with ultraviolet light disinfection. The current WWTP upgrades will include a new influent pump station, a new influent headworks system with mechanical screening and flow measurement equipment, an aeration basin, a new return activated sludge pump station, a clarifier, tertiary filters, ultraviolet light disinfection, re-aeration, and new effluent pumps.

The current expansion will accommodate an average dry weather flow (ADWF) of 0.7 mgd and the second future expansion is proposed to accommodate up to an ADWF of 1.18 mgd. The current expansion, however, is not designed to accommodate denitrification, which is necessary for the Discharger to comply with the nitrite+nitrate effluent limitation included in this Order to protect the MUN beneficial use of the receiving water. The Discharger is considering an alternative to extend the outfall pipeline to discharge directly to the Colusa Basin Drain as part of its future expansion to 1.18 mgd.

## **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 Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (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, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional 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 the unnamed tributary to Powell Slough are municipal and domestic supply, agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; warm freshwater habitat; potential cold freshwater habitat; warm migration of aquatic organisms; warm spawning, reproduction, and/or early development; and wildlife habitat.

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. Section 131.3(e), 40 CFR, 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 section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

The Regional Water Board considered the factors listed in CWC section 13241 at the time of adoption of the previous Order No. 2002-0002 which initially established tertiary level effluent limitations for protection of beneficial uses of the receiving water (as discussed in more detail in Section IV.C.3.r of this Fact Sheet). The previous permit, however, did not recognize the MUN beneficial use to the receiving water. Although the receiving waters which consist of a modified agricultural drain and a slough upstream of the Colusa Basin Drain, which is specifically not designated with the MUN beneficial use, this Order newly interprets the beneficial uses of the receiving waters to include the beneficial use of MUN through implementation of State Water Board Resolution No. 88-63. As specified in Chapter IV of the Basin Plan, an exception to Resolution No. 88-63, and removal of the MUN beneficial use designation for the receiving waters, is effective after a Basin Plan Amendment is adopted by the Regional Water Board and approved by the State Water Board and Office of Administrative Law. Therefore, in addition to the previously established tertiary effluent limitations, this Order contains new effluent limitations necessary to protect the municipal and domestic supply use of the receiving water.

2. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 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 Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in Section IV.D.4. of this Fact Sheet, the discharge is consistent with the antidegradation provisions of 40 CFR section 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 title 40, Code of Federal Regulations section 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. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.
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 Emergency Planning and Community Right to Know Act (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. ***Stormwater 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 storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the stormwater program and are obligated to comply with the Federal Regulations.
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.

#### **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 25 July 2003 USEPA gave final approval to California's 2002 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.*” Neither Powell Slough, nor its unnamed tributary are listed on California’s 2006 section 303(d) List of Water Quality Limited Segments.

Diazinon and molinate were not detected in the effluent. Therefore, this Order does not contain effluent limitations for these constituents. The Discharger has not monitored the effluent for azinphos-methyl, malathion, or methyl parathion. This Order includes the requirement of effluent and receiving water monitoring of these constituents.

2. **Total Maximum Daily Loads.** The US EPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. TMDLs have not been adopted for the Colusa Basin Drain as of November 2007.

#### **E. Other Plans, Polices 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.
2. The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.

#### **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 Section

122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that “*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*” Federal Regulations, 40 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 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 Regional Water Board’s Basin Plan, page IV-17.00, contains an implementation policy (“Policy for Application of Water Quality Objectives” that specifies that the Regional 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 Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA’s published water quality criteria, (2) a proposed state criterion (*i.e.*, water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional 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 Regional 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 Regional Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.*

## B. Technology-Based Effluent Limitations

### 1. Scope and Authority

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

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for 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 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. Tertiary treatment 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; the

30-day average BOD<sub>5</sub> and TSS limitations have been revised to 10 mg/L, which is 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-3 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. **Flow.** The WWTP must provide tertiary level treatment, or equivalent, for up to a design flow of 0.7 mgd. Therefore, this Order contains an Average Dry Weather Flow effluent limit of 0.7 mgd.

### Summary of Technology-based Effluent Limitations Discharge Point D-001

**Table F-3. Summary of Technology-based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD <sub>5</sub>	mg/L	10	15	20		
	lbs/day	58	88	120		
	% removal	85				
TSS	mg/L	10	15	20		
	lbs/day	58	88	120		
	% removal	85				
pH	standard units				6.0 <sup>1</sup>	9.0 <sup>1</sup>

<sup>1</sup> More stringent Water Quality Based Effluent Limitations

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

### 1. Scope and Authority

As specified in section 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.** Discharge 001 is to an unnamed tributary of Powell Slough. Refer to Section III for the beneficial uses of the receiving water.
- b. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, effluent limitations for certain metals. The *California Toxics Rule*, at (c)(4), states the following:

“Application of metals criteria. (i) *For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/L or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations.*”  
[emphasis added]

The State Water Board, in footnote 19 to Water Quality Order No. 2004-0013, stated: “*We note that...the Regional Water Board...applied a variable hardness value whereby effluent limitations will vary depending on the actual, current hardness values in the receiving water. We recommend that the Regional Water Board establish either fixed or seasonal effluent limitations for metals, as provided in the SIP, rather than ‘floating’ effluent limitations.*”

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. For purposes of establishing water quality-based effluent limitations, the lowest effluent hardness value of 98 mg/L as CaCO<sub>3</sub>, reported in January 2004, was used to determine hardness-dependent criteria for certain effluent limitations.

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

The State Water Resources Control Board Water Quality Order (WQO) No. 2002-0015, states that the use of the harmonic mean to determine flow rates is inappropriate for ephemeral streams where there is no consistent background dilution. The impact of considering a receiving stream to be ephemeral is that all limitations are “end of pipe” without any benefit of dilution. Since the receiving streams’ flows are, at times, immeasurably small to nonexistent, this Order contains “end of pipe” limitations, with no dilution credits.

## 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 Regional 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 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 Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, chlorodibromomethane, copper, dichlorobromomethane, foaming agents (MBAS), iron, manganese, and total trihalomethanes. Water quality-based effluent limitations (WQBELs) for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment H, and a detailed discussion of the RPA for each constituent is provided below.
- c. The Regional 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 Section IV.C.4 of this Fact Sheet.

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

- e. **Aluminum.** Criteria for aluminum applicable to this receiving water include the following:

Source	Criteria (ug/L)
California Primary MCL	1000
California Secondary MCL	200
USEPA Freshwater Aquatic Life Criteria (Acute 1-hour Average)	750
USEPA Freshwater Aquatic Life Criteria (Chronic 4-day Average) <sup>1</sup>	87

<sup>1</sup> Not applicable to receiving water in this Order.

The Regional Water Board has used USEPA’s criteria for prevention of acute and chronic toxicity to implement the Basin Plan’s narrative toxicity objective. The most stringent of these criteria is the chronic criteria of 87 ug/L. This criteria is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as CaCO<sub>3</sub>), conditions not commonly observed in valley floor waters like the unnamed tributary to Powell Slough. The criteria are applicable to site-specific cases where the receiving water meets the low hardness and pH conditions. The unnamed tributary to Powell Slough has a hardness of 114 mg/L and a pH of 8.0. The effluent has been measured to have a hardness of 98 mg/L as CaCO<sub>3</sub> (the hardness value of 98 as CaCO<sub>3</sub> was used to derive hardness-dependent effluent limitations.) The application of the chronic criteria of 87 ug/l for water bodies where the pH is greater than 7.0 and the hardness is greater than 50 mg/L as CaCO<sub>3</sub>, such as this receiving water, is likely to be overprotective for this receiving water. In the case of Pough Slough, it is unlikely that application of the stringent chronic criteria is necessary to protect aquatic life. Therefore, the acute criteria of 750 ug/l and the Department of Public Health secondary MCL of 200 ug/l are used to derive effluent limitations for aluminum in this Order.

The MEC for aluminum was 1270 µg/L, based on twenty-four samples collected between January 2002 and December 2006, while the observed upstream receiving water aluminum concentration was 2130 µg/L, based on one sample collected 5 August 2002. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan’s narrative toxicity objective. No dilution is allowed due to periods of no measurable flow in the receiving water. This Order contains final Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitations (MDEL) for aluminum of 330 µg/L and 750 µg/L, respectively, based on USEPA’s

National Ambient Water Quality Criteria for the protection of freshwater aquatic life (See Table F-5 of this Fact Sheet for WQBEL calculations).

The Basin Plan also includes a chemical constituent objective that states:

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) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449.

By State Water Board Resolution No. 88-63, the unnamed tributary to Powell Slough has the designated beneficial use of MUN. Based on this, the lack of available dilution in the receiving water, and the above effluent data, the discharge has the reasonable potential to cause an exceedance of the Basin Plan chemical constituent objective for aluminum of 200 ug/L. In addition to the AMEL and MDEL established for protection of aquatic life, this Order includes a final annual average effluent limit for aluminum based on the MCL.

In USEPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], USEPA states that “[a]cid-soluble aluminum...is probably the best measurement at the present...”; however, USEPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on USEPA's discussion of aluminum analytical methods, this Order allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

- f. **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. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. The Discharger is in the process of upgrading the WWTP to include nitrification. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia may violate the Basin Plan narrative toxicity objective. Applying 40 CFR section 122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms.

USEPA's *Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life*, for total ammonia, recommends acute (1-hour average; criteria maximum concentration) standards based on pH and chronic (30-day average, criteria

continuous concentration) standards based on pH and temperature. It also recommends a maximum four-day average concentration of .25 times the criteria continuous concentration. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the unnamed tributary to Powell Slough has beneficial uses of potential cold freshwater habitat, and spawning, reproduction, and/or early development, the recommended criteria for waters where salmonids and early life stages are present were used. USEPA's recommended criteria are show below:

$$CCC_{30\text{-day}} = \left( \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) \times \text{MIN}(2.85, 1.45 \cdot 10^{0.028(25 - T)}), \text{ and}$$

$$CMC = \left( \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}} \right),$$

where  $T$  is in degrees Celsius

The maximum permitted effluent pH is 8.5. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. The maximum observed rolling 30-day average effluent temperature was 76.6°F (24.8 C), for the 30-day periods from 1 April through 15 November. The maximum observed rolling 30-day average R-1 temperature was 76.8°F (24.9 C), for the 30-day periods 1 April through 15 November. The maximum observed rolling 30-day average effluent temperature was 57.6°F (14.2 C), for the 30-day periods from 16 November through 31 March. The maximum observed rolling 30-day average R-1 temperature was 54.7°F (12.6 C), for the 30-day periods 16 November through 31 March. Using the maximum permitted (worst case) pH value of 8.5 and worst-case temperature values of 76.8°F (24.9 C) and 57.6°F (14.2 C) on a 30-day basis, the 30-day criteria is 0.56 mg/L from 1 April through 15 November and 1.09 mg/L from 16 November through 31 March. The 4-day criteria are 1.40 mg/L from 1 April through 15 November and 2.73 mg/L from 16 November through 31 March. The resulting average monthly ammonia effluent limitations are 0.60 mg/L (as N) from 1 April through 15 November and 1.2 mg/L (as N) from 16 November through 31 March.

The 1-hour criteria are 2.14 mg/L year-round. The resulting maximum daily ammonia effluent limitations are 1.2 mg/L (as N) from 1 April through 15 November and 2.1 mg/L (as N) from 16 November through 31 March.

Effluent Limitations for ammonia are included in this Order to assure the treatment process adequately nitrifies the waste stream to protect the aquatic habitat beneficial uses. (See Table F-6 of this Fact Sheet for WQBEL calculations). The Discharger is on schedule to have its upgraded advanced secondary treatment process that will nitrify the wastewater and remove

ammonia in operation by 1 August 2008. Therefore, it is anticipated that the Discharger can comply with ammonia limitations in this Order upon the effective date of this Order.

- g. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethylhexyl) phthalate 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 (MBAS), animal glue, surface lubricants, and other products that must stay flexible and noninjurious for the lifetime of their use. The State MCL for bis(2 ethylhexyl)phthalate 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.

The MEC for bis (2-ethylhexyl) phthalate was 6 µg/L, based on five samples collected between January 2002 and December 2006, while the maximum observed upstream receiving water bis(2-ethylhexyl) phthalate concentration was non-detect, based on one sample collected 5 August 2002. The previous Order required composite sampling of bis(2-ethylhexyl)phthalate, and the plastic tubing used in composite sampling may have contaminated the samples. Due to the sampling method used to collect the data, the data for bis(2-ethylhexyl)phthalate may be unreliable and reasonable potential cannot be determined at this time. Therefore, this Order requires twice yearly monitoring of bis(2-ethylhexyl)phthalate to determine whether there is reasonable potential for the discharge to cause or contribute to an in-stream excursion above the NTR criterion for bis (2-ethylhexyl) phthalate.

- h. **Carbofuran.** Carbofuran is a pesticide that has historically been used on crops such as rice. The Department of Public Health MCL for carbofuran is 18 µg/l. The USEPA Recommended Ambient Water Quality Criteria maximum instantaneous criterion for carbofuran, developed by the California Department of Fish and Game (CDFG), for protection of freshwater aquatic life, is 0.5 µg/L.

The MEC for carbofuran was 3.5 µg/L (estimated value with a minimum detection level of 0.5 ug/L measured in April 2002), based on four samples collected between January 2002 and December 2002. Two effluent carbofuran samples resulted in estimated (j-flagged) values and the other two samples resulted in non-detect. The observed upstream receiving water carbofuran sampling of one sample collected 5 August 2002 resulted in non-detect. With the available effluent and receiving water data that consist of non-detect and estimated values, it is difficult to determine if there is a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life in accordance with the Basin Plan's narrative toxicity objective. The resulting estimated (j-flagged) values observed in 2002 may have been caused by interference in the samples. At this time, since most observed effluent

concentrations and the observed receiving water concentration were non-detect, it is not concluded that there is no reasonable potential for carbofuran from this discharge. To address potential concerns of carbofuran possibly existing in the effluent, this Order requires the Discharger to conduct a constituent study that includes quarterly carbofuran effluent monitoring for four quarters. This Order also includes a reopener for the Regional Water Board's consideration of inclusion of a carbofuran effluent limitation if additional data collected concludes that an effluent limitation is necessary to protect the receiving water.

- i. **Chlorine Residual.** The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to the unnamed tributary to Powell Slough. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. Average one-hour and four-day limitations for chlorine, based on these criteria, are included in this Order. The Discharger can immediately comply with these new effluent limitations for chlorine residual.

- j. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. Using the reasonable worst-case measured effluent hardness of 98 mg/L as CaCO<sub>3</sub>, the acute (1-hour) criteria for dissolved copper is 13.2 µg/L and the dissolved chronic (4-hour) criteria is 8.8 µg/L. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Therefore, using the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum four-day average concentration) is 9.2 µg/L and the applicable acute criterion (maximum one-hour average concentration) is 13.75 µg/L, as total recoverable.

The MEC for total copper was 13.7 µg/L, based on ten samples collected between January 2004 and December 2006, while the maximum observed upstream receiving water total copper concentration was 5.6 µg/L, based on one sample collected 5 August 2002. Seventeen samples of effluent copper were taken during this time period, but seven were not included in the RPA analysis due to a method detection limit that was too high to provide meaningful data. (These seven samples all showed non-detect copper concentration in the

effluent, but the method detection limit was 50 ug/L, which is greater than the criterion concentration.)

The discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. No dilution is allowed due to periods of no flow in the receiving water. An AMEL and MDEL for total copper of 8.1 µg/L and 13 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (See Table F-7 for WQBEL calculations).

Data used for the reasonable potential analysis for copper reflects the concentration in the copper and hardness in the effluent from the previous pond system. It is not known if the Discharger is able to comply with the newly more stringent copper limitations as the new advanced secondary and tertiary facilities come online in August 2008. This Order includes a compliance schedule for the more stringent copper limitation to become effective on 18 May 2010. Additionally, the Order requires a constituent study that contains one year of monthly monitoring of copper and hardness, and a reopener identifying that the copper effluent limitations in this Order may need to be modified based on the water quality effluent data collected after initiation of the upgraded facility.

- k. **Chlorodibromomethane.** The CTR includes a chlorodibromomethane criterion of 0.41 µg/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 7 µg/L, based on six samples collected between January 2002 and December 2006, while the observed upstream receiving water chlorodibromomethane concentration was non-detect, based on one sample collected 5 August 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for chlorodibromomethane.

No dilution is allowed due to periods of no flow in the receiving water. An AMEL of 0.41 µg/L and an MDEL of 0.82 µg/L for chlorodibromomethane are included in this Order based on the CTR criterion for the protection of human health.

Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. The Discharger is unable to immediately comply with these limitations upon the effective date of this Order. However, the Discharger anticipates being in compliance with the chlorodibromomethane effluent limitation once the proposed replacement of the chlorine disinfection with ultraviolet light disinfection takes place.

Section 2.1 of the SIP provides that: *“Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES*

*permit.”* Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ...“(a) *documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.*” The Discharger provided this information on 8 January 2008. The new water quality-based effluent limitations for chlorodibromomethane become effective on **1 May 2009**. Since the compliance schedule is less than one year, interim limitations and the requirement for pollution prevention plan is not applicable.

- I. **Dichlorobromomethane.** The CTR includes a dichlorobromomethane criterion of 0.56 µg/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 10.7 µg/L, based on six samples collected between January 2002 and December 2006, while the observed upstream receiving water dichlorobromomethane concentration was non-detect, based on one sample collected 5 August 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane.

No dilution is allowed due to periods of no flow in the receiving water. An AMEL of 0.56 µg/L and an MDEL of 1.1 µg/L for dichlorobromomethane are included in this Order based on the CTR criterion for the protection of human health.

Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. The Discharger is unable to immediately comply with these limitations upon the effective date of this Order. However, the Discharger anticipates being in compliance with the dibromochloromethane effluent limitation once the proposed replacement of the chlorine disinfection with ultraviolet light disinfection takes place.

Section 2.1 of the SIP provides that: “*Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.*” Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ...“(a) *documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste*

*treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.”* The Discharger provided this information on 8 January 2008. The new water quality-based effluent limitations for dichlorobromomethane become effective on **1 May 2009**. Since the compliance schedule is less than one year, interim limitations and the requirement for a pollution prevention plan is not applicable.

**m. Electrical Conductivity. (see Subsection jj. Salinity)**

- n. **Iron.** The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. The MEC for iron was 943 µg/L, based on seven samples collected between January 2002 and December 2006, while the observed upstream receiving water iron concentration was 2630 µg/L, based on one sample collected 5 August 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron. No dilution is allowed due to periods of no flow in the receiving water. An annual average effluent limitation of 300 µg/L for iron is included in this Order based on protection of the Basin Plan’s narrative chemical constituents objective.
- o. **Manganese.** The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L. The MEC for manganese was 133 µg/L, based on seven samples collected between January 2002 and December 2006, while the observed upstream receiving water manganese concentration was 185 µg/L, based on one sample collected 5 August 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for manganese. No dilution is allowed due to periods of no flow in the receiving water. An annual average effluent limitation of 50 µg/L for manganese is included in this Order based on protection of the Basin Plan’s narrative chemical constituents objective.
- p. **Mercury.** The current USEPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that “...*more stringent mercury limits may be determined and implemented through use of the State’s narrative criterion.*” In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

The maximum observed effluent mercury concentration was 0.0468 µg/L, from a sample collected on 13 December 2006. However, the Sacramento/San Joaquin Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. Mercury bioaccumulates in fish tissue and, therefore, discharge of mercury to the receiving water is likely to contribute to exceedances of the narrative toxicity objective and impacts on beneficial uses.

Because the receiving water is tributary to the Sacramento/San Joaquin Delta, which has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. This Order contains a performance-based mass Effluent Limitation of 0.0082 lbs/month for mercury. This limitation is intended to maintain the mercury loading at the current level until a total maximum daily load (TMDL) can be established and USEPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration and the reported average daily effluent flow rate. Compliance time schedules have not been included in this Order. If USEPA develops new water quality standards for mercury, this permit may be reopened and the Effluent Limitations modified, as necessary.

- q. **Methoxychlor.** Methoxychlor was detected in the effluent in December 2005 at an estimated concentration of 0.125 µg/L. Other sampling events in 2002 indicated that the constituent was non-detect at a minimum detection level of 0.05 µg/L. The Report of Waste Discharge indicates that the sample resulted in the estimated j-flagged value of 0.125 µg/L was diluted due to the sample matrix which resulted in elevated reporting levels. The reporting level for the matrix duplicate was outside of the Quality Control acceptance limits due to the matrix interference. Therefore, the j-flag values are not reliable because they are below the detection limit identified by the laboratory.

This constituent is a chlorinated hydrocarbon pesticide. The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; total chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The sample interference experienced during the analysis of the one j-flagged monitoring result makes it difficult to determine if methoxychlor is present in the effluent and if the discharge has a reasonable potential to exceed the Basin Plan “non-detect limitations for chlorinated hydrocarbon pesticides. Therefore, this Order requires the Discharger to conduct a constituent study for methoxychlor which requires quarterly monitoring of the effluent, for four consecutive quarters, during the first year of the permit term. This Order also includes a reopener to allow the Regional Water Board to include an effluent limitation for methoxychlor if data indicates there is a reasonable potential for the effluent to cause or contribute to an in-stream excursion of the Basin Plan objective of non-detect for methoxychlor.

- r. **Methylene blue active substances (Foaming Agents or MBAS).** The Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of for foaming agents (MBAS) is 500 µg/L. The MEC for MBAS was 3620 µg/L, based on six samples collected between January 2002 and December 2006,

while the observed upstream receiving water MBAS concentration was 0.14 µg/L, based on one samples collected 5 August 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for MBAS. No dilution is allowed due to periods of no flow in the receiving water. An annual average effluent limitation of 500 µg/L for MBAS is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

The new foaming agents (MBAS) effluent limitation is established due to a new interpretation and application of the MUN beneficial uses to the receiving water. The Discharger is not able to immediately comply with the effluent limitation and is has not arrived to a compliance option that is applicable to the new effluent limitation. A compliance schedule of up to 1 August 2013 is included in this Order for the Discharger to comply with the new foaming agents effluent limitation.

- s. **Nitrite and 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 nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. The California DPH has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1,000 µg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10,000 µg/L as Primary Maximum Contaminant Level) and Ambient Water Quality Criteria for protection of human health (10,000 µg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

To come in compliance with effluent limitations in previous Order No. R5-2002-0020, the Discharger is currently upgrading the WWTP to include advanced biological treatment (nitrification) and tertiary filtration. The current upgrade project does not include a denitrification process. Inadequate or incomplete denitrification (the conversion of ammonia to nitrites and the conversion of nitrites to nitrates) may result in the discharge of nitrate and/or nitrite to the receiving stream. Therefore, a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Department of Public Health's Primary Maximum Contaminant Level (MCL) for nitrite and nitrate. An AMEL for nitrate + nitrite of 10 mg/L is included in this Order based on the MCL. This

effluent limitation is included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

The new nitrate plus nitrite effluent limitation is established due to a new interpretation and application of the MUN beneficial uses to the receiving water. The Discharger is not able to immediately comply with the new nitrate plus nitrate effluent limitations. Options the Discharger is considering for compliance with the new nitrate plus nitrite effluent limitation include incorporating denitrification into its newly upgraded facility, conducting a subsequent facility upgrade to include denitrification, change the location of discharge to the downstream Colusa Basin Drain that does not have the MUN designation, or request and obtain a basin plan amendment for removal of the MUN beneficial use designation to the current receiving water. A compliance schedule of up to 1 August 2013 is included in this Order for the Discharger to comply with the new nitrate plus nitrite effluent limitation.

- t. **Pathogens.** The beneficial uses of the unnamed tributary to the Powell Slough include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Regional Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses.

The California Department of Public Health Services (DPH) has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 ml as a 7-day median. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as “...an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Regional Water Board finds that it is appropriate to apply an equivalent level of treatment to that

required by DPH's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.

In addition to coliform testing, a turbidity effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average effluent limitations are impracticable for turbidity.

This Order contains effluent limitations and a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Regional Water Board considered the factors included in CWC section 13241 during its adoption of the previous Order No. 2002-0020 which initially established tertiary level effluent limitations.

- u. **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. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses." Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.
- v. **Phthalate Esters.** USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for phthalate esters. The recommended chronic and acute criteria for the sum of phthalate esters are 3 µg/L and 940 µg/L, respectively.

Di-n-butyl phthalate, a CTR constituent and one of the group of phthalate esters, has a CTR criterion of 2700 ug/L. Di-n-butyl phthalate was detected in the effluent. The MEC for di-n-butyl phthalate was an estimated (j-flagged) value of 8 µg/L, with a method detection level of 5 ug/L, based on six samples collected between January 2002 and December 2006. The observed upstream receiving water di-n-butyl phthalate concentration was an estimated (j-flagged) value of 6

µg/L, with a method detection level of 5 ug/L, based on one sample collected 5 August 2002.

Although the method detection level of 5 ug/L is greater than the criteria of 3 ug/L for the sum of phthalate esters, it is difficult to determine if the amount of phthalate esters in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan’s narrative toxicity objective. Therefore, this Order requires the Discharger to conduct a constituent study for phthalate esters which requires quarterly monitoring of the effluent, for four consecutive quarters, during the first year of the permit term. This Order also includes a reopener to allow the Regional Water Board to include an effluent limitation for phthalate esters if data indicates there is a reasonable potential for the effluent to cause or contribute to an in-stream excursion of the Basin Plan’s narrative toxicity objective.

- w. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). The discharge has not been sampled for boron. 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. 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, and Chloride.

**Table F-4. Salinity Water Quality Criteria/Objectives**

Parameter	Agricultural WQ Goal <sup>1</sup>	Secondary MCL <sup>3</sup>	Effluent –Discharge 001	
			Average	Maximum
EC (µmhos/cm)	Varies <sup>2</sup>	900, 1600, 2200	1410	3800
TDS (mg/L)	Varies <sup>2</sup>	500, 1000, 1500	713	990
Sulfate (mg/L)	Varies <sup>2</sup>	250, 500, 600	133	169
Boron (mg/L)	Varies <sup>2</sup>	N/A	--	--
Chloride (mg/L)	Varies <sup>2</sup>	250, 500, 600	120	140

<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 (Ayers and Westcot, 1985 Study).

<sup>2</sup>. Agricultural water quality goals listed provide no restrictions on crop type or irrigation methods for maximum crop yield. Higher concentrations may require special irrigation methods to maintain crop yields or may restrict types of crops grown.

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

- i. **Boron.** The recommended agricultural water quality goal for boron is 700 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 (Ayers and Westcot 1985 Study). In addition to the mineral elements N, P, K, S, Ca, and Mg, defined as macronutrients, plants require other mineral elements, which are generally described as

micronutrients, due to the relatively small amounts required.

The Discharger has not monitored its effluent for boron. This Order requires the Discharger to monitor boron and, conduct site-specific studies to determine the appropriate boron level to protect beneficial uses. It is the intent of the Regional Water Board to include a final effluent limitation that is protective of boron, if necessary, in a subsequent permit renewal or amendment, based on the results of the monitoring and approved site-specific studies.

- ii. **Chloride.** The secondary MCL for chloride is 250 mg/L, as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

Chloride concentrations in the effluent ranged from 74.3 mg/L to 140 mg/L, with an average of 120 mg/L, for six samples collected by the Discharger from January 2002 through December 2006. The background concentration in the Colusa Basin Drain was 26.2 mg/L, based on samples collected by the Discharger on 5 August 2002 and 15 October 2002. The effluent, at times, exceeds the agricultural water quality goal of 106 mg/L.

This Order requires the Discharger to conduct site-specific studies to determine the appropriate chloride level to protect beneficial uses. It is the intent of the Regional Water Board to include a final effluent limitation that is protective of chloride in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

- iii. **Electrical Conductivity (EC).** The secondary MCL for EC is 900  $\mu\text{mhos/cm}$  as a recommended level, 1600  $\mu\text{mhos/cm}$  as an upper level, and 2200  $\mu\text{mhos/cm}$  as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700  $\mu\text{mhos/cm}$  as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700  $\mu\text{mhos/cm}$  agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are

potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

A review of the Discharger's monitoring reports from January 2003 through December 2005 shows an average effluent EC of 1410  $\mu\text{mhos/cm}$ , with a range from 570  $\mu\text{mhos/cm}$  to 3800  $\mu\text{mhos/cm}$  for 288 samples. These levels exceed the applicable objectives. The background receiving water EC was 681  $\mu\text{mhos/cm}$  in one sampling event collected by the Discharger 5 August 2002.

To protect the receiving water from further salinity degradation, an interim performance-based annual average EC effluent limitation of 1500  $\mu\text{mhos/cm}$  is included in this Order. This Order requires the Discharger to conduct site-specific studies to determine the appropriate EC level to protect beneficial uses. It is the intent of the Regional Water Board to include a final EC effluent limitation in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

- iv. **Sulfate.** The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 113 mg/L to 169 mg/L, with an average of 133 mg/L, for six samples collected by the Discharger from January 2002 through December 2006. The background concentration in the unnamed tributary to Powell Slough was 83.4 mg/L, based on one sample collected by the Discharger on 5 August 2002. The effluent is below the secondary MCL recommended level of 250 mg/L, and does not exist at at concentration of concern for the receiving water.
- v. **Total Dissolved Solids (TDS).** The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, 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 TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS effluent concentration was 713 mg/L and a ranged from 194 mg/L to 990 mg/L for eleven samples collected by the Discharger from January 2003 through December 2006. These concentrations exceed the applicable water quality objectives. The background receiving water TDS was 416 mg/L, based on one sampling event performed by the Discharger on 5 August 2002.

The TDS effluent concentration varied with the level of EC in the effluent, at a ratio of approximately 60 percent. A comparison of the annual average TDS to the corresponding annual average EC demonstrated that the percent reduction in EC necessary to achieve 700 umhos/cm was greater than the percent reduction in TDS necessary to achieve 450 mg/L. EC is used as an indicator parameter for salinity. Since it is expected that TDS concentrations are directly related to EC levels in the effluent, this Order contains an interim effluent limitation for EC instead of TDS. Using EC instead of TDS to measure salinity is more cost-effective and allows continuous monitoring.

- x. **Settleable Solids.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” This Order contains average monthly and average daily effluent limitations for settleable solids.

Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order. A daily maximum effluent limitation for settleable solids is included in the Order, in lieu of a weekly average.

- y. **2,3,7,8-TCDD and Congeners (Dioxins).** The CTR includes a criterion for 2,3,7,8-TCDD of 0.014 pg/L for the protection of human health based on ingestion of organisms only. The CTR does not include criteria for other dioxin congeners and there are no formally promulgated numeric water quality criteria for the other dioxin congeners. Therefore, determination of reasonable potential and effluent limitations, when appropriate, would be based on an interpretation of the Basin Plan narrative toxicity standard.

Dioxins and congeners occur as a large number of different isomers (congeners). In addition to 2,3,7,8-TCDD, there are many congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. Since human exposure to dioxins occurs as a complex mixture of these congeners, a methodology referred to as the Toxic Equivalency Factor (TEF) was developed to assess the health risks posed by mixtures of these compounds. The TEF methodology is a relative potency scheme that ranks the dioxin-like toxicity of a particular congener relative to 2,3,7,8-TCDD, which is the most potent congener. The TEF scheme used for inland surface waters, enclosed bays, and estuaries of California is provided in Section 3 of the SIP.

The SIP is the statewide, adopted Policy that Regional Water Boards must follow for implementing the CTR. In regards to 2,3,7,8-TCDD and its congeners the SIP reads:

*“Whether or not an effluent limitation is required for 2,3,7,8-TCDD in accordance with Section 1.3 of the Policy, each RWQCB shall require (as described below) major and minor POTW and industrial dischargers in its region to conduct effluent monitoring for the 2,3,7,8-TCDD congeners listed above. The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach.”*

To date, the multi-media control strategy referenced in the SIP has not been developed. The introduction to the SIP states, in part, that the Policy establishes monitoring requirements for 2,3,7,8-TCDD equivalents. The SIP does not explicitly direct the Regional Water Boards to establish effluent limits when dioxin congeners are detected in the effluent. Rather it directs the discharger to report the data and in its report to multiply each measured or estimated congener concentration by its respective TEF value (described above) and report the sum of these values to the Regional Water Board. The SIP further states:

*“Based on the monitoring results, the RWQCB may, at its discretion, increase the monitoring requirement (e.g., increase sampling frequency) to further investigate frequent or significant detections of any congener. At the conclusion of the three-year monitoring period, the SWRCB and RWQCBs will assess the data (a total of six samples each from major POTWs and industrial dischargers, and a total of two samples each from minor POTWs and industrial dischargers), and determine whether further monitoring is necessary.”*

The City of Colusa does not have any industrial dischargers that could be potentially contributing dioxin congeners into the wastewater. The Discharger performed dioxin and furan congeners monitoring of the Facility effluent in 2002. 2,3,7,8-TCDD was not detected in any of the samples collected in the Facility effluent. In the effluent, two of the congeners (1,2,3,4,6,7,8-HeptaCDD and OCDD) were reported as individually detected. However, of the detected values of 1,2,3,4,6,7,8-HeptaCDD, all were estimated values (i.e., j-flagged) and all but one of the detected values of OCDD were estimated values.

Based on the limited data available, the lack of formally promulgated water quality criteria for congeners other than 2,3,7,8-TCDD, the fact that the receiving water, Powell Slough, and the Colusa Basin Drain are not listed as impaired for dioxins and furans, and because the multi-media control strategy discussed in the SIP has not been developed, it is not appropriate to establish effluent limitations for other dioxin congeners at this time.

Due to the concerns of the potential impacts of dioxins and congeners on the receiving water, this Order requires the Discharger to conduct a constituent study for phthalate esters which requires twice-a-year monitoring of the effluent, for one year, during the first year of the permit term. This Order also includes a reopener to allow the Regional Water Board to include an effluent limitation for dioxins and furans if data indicates there is a reasonable potential for the effluent to cause or contribute to an in-stream excursion of the applicable water quality criteria. Since there is no industry within the City of Colusa that may be an identifiable dioxin source of dioxin in its WWTP influent, it is not practicable to require the Discharger to conduct a source identification and evaluation plan. Therefore, this Order does not require the Discharger to identify the sources of detected dioxin congeners in its WWTP influent and effluent.

- z. **Total Trihalomethanes (THMs).** Information submitted by the Discharger indicates that the effluent contains total trihalomethanes (THMs). The Basin Plan contains the narrative “chemical constituent” objective that requires, at a minimum, that waters with a designated MUN use not exceed California MCLs. In addition, the chemical constituent objective prohibits chemical constituents in concentrations that adversely affect beneficial uses. The California primary MCL for total THMs is 100 µg/L. The USEPA primary MCL for total THMs is 80 µg/L, which was effective on 1 January 2002 for surface water systems that serve more than 10,000 people. Pursuant to the Safe Drinking Water Act, DPH must revise the current total THMs MCL in Title 22, CCR to be as low or lower than the USEPA MCL. Total THMs include bromoform, dichlorobromomethane, chloroform, and chlorodibromomethane. The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the regional boards, departments, and offices within Cal/EPA. This cancer potency factor is equivalent to a chloroform concentration in drinking water of 1.1 µg/L (ppb) at the 1-in-a-million cancer risk level with an average daily consumption of two liters of drinking water over a 70-year lifetime. This risk level is consistent with that used by the DPH to set de minimis risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels, and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by USEPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters.

MUN is a designated beneficial use of the receiving water. However, there are no known drinking water intakes in the unnamed tributary of Powell Slough downstream of the discharge or in Powell Slough downstream of the discharge, and chloroform is a non-conservative pollutant. Therefore, to protect the MUN use of the receiving waters, the Regional Water Board finds that, in this specific circumstance, application of the USEPA MCL for total THMs as a monthly effluent limitation is appropriate to regulate trihalomethanes in the effluent.

Effluent samples collected from January 2002 through December 2006 indicate that THMs were present with a maximum concentration of 113.2 µg/L and an average concentration of 24 µg/L. Therefore, total THMs in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above the USEPA primary MCL for total THMs. No dilution is allowed due to periods of no flow in the receiving water. An annual average effluent limitation of 80 µg/L for total THMs is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

The new trihalomethane effluent limitation is established due to a new interpretation and application of the MUN beneficial uses to the receiving water. The Discharger is not able to immediately comply with the new effluent limitation. However, the Discharger anticipates being in compliance with the total trihalomethane effluent limitation once the proposed replacement of the chlorine disinfection with ultraviolet light disinfection takes place. This Order contains a time schedule for compliance with the trihalomethanes effluent limitation by 1 May 2009, the anticipated date that the ultraviolet light disinfection system will be fully operational.

aa. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

#### 4. WQBEL Calculations

- a. Effluent limitations for aluminum, ammonia, chlorodibromomethane, copper, dichlorobromomethane, foaming agents (MBAS), iron, manganese, and total trihalomethanes were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.
- b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$$ECA_{HH} = HH + D(HH - B)$$

where:

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

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

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

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-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.

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

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

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

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

Water quality-based effluent limitations were calculated for aluminum, ammonia, copper, and phthalate esters as follows in Tables F-5 through F-8, below.

**Table F-5. WQBEL Calculations for Aluminium**

	Acute	Chronic
Criteria (µg/L) <sup>(1)</sup>	750	Not Applicable
Dilution Credit	No Dilution	
ECA	750	
ECA Multiplier	0.249	
LTA	187	
AMEL Multiplier (95 <sup>th</sup> %)	<sup>(2)</sup> 1.75	
<b>AMEL (µg/L)</b>	<sup>(2)</sup> 330	
MDEL Multiplier (99 <sup>th</sup> %)	<sup>(2)</sup> 4.01	
<b>MDEL (µg/L)</b>	<sup>(2)</sup> 750	

- 1. USEPA Ambient Water Quality Criteria
- 2. Limitations based on chronic LTA (Acute LTA < C LTA)

**Table F-6. WQBEL Calculations for Ammonia**

	1 April – 15 November		16 November – 31 March	
	Acute	Chronic	Acute	Chronic
pH <sup>(1)</sup>	8.5	8.5	8.5	8.5
Temperature °C <sup>(2)</sup>	N/A	24.9	N/A	14.2
Criteria (mg/L) <sup>(3)</sup>	2.14	0.56	2.14	1.09
Dilution Credit	No Dilution	No Dilution	No Dilution	No Dilution
ECA	2.14	0.56	2.14	1.09
ECA Multiplier	0.39	0.82	0.40	0.83
LTA	0.84	0.46	0.86	0.90
AMEL Multiplier (95 <sup>th</sup> %)	<sup>(4)</sup>	1.2	1.4	<sup>(5)</sup>
<b>AMEL (mg/L)</b>	<sup>(4)</sup>	<b>0.60</b>	<b>1.2</b>	<sup>(5)</sup>
MDEL Multiplier (99 <sup>th</sup> %)	<sup>(4)</sup>	2.6	2.5	<sup>(5)</sup>
<b>MDEL (mg/L)</b>	<sup>(4)</sup>	<b>1.2</b>	<b>2.1</b>	<sup>(5)</sup>

- 1. Acute design pH = 8.5 (max. allowed effluent pH), Chronic design pH = median receiving stream pH
- 2. Temperature = Maximum 30-day average seasonal effluent temperature
- 3. USEPA Ambient Water Quality Criteria
- 4. Limitations based on chronic LTA ( $LTA_{\text{chronic}} < LTA_{\text{acute}}$ )
- 5. Limitations based on acute LTA ( $LTA_{\text{acute}} < LTA_{\text{chronic}}$ )

**Table F-7. WQBEL Calculations for Copper**

	Acute	Chronic
Criteria, dissolved (µg/L) <sup>(1)</sup>	13.2	8.8
Dilution Credit	No Dilution	No Dilution
Translator <sup>(2)</sup>	0.96	0.96
ECA, total recoverable <sup>(3)</sup>	13.75	9.2
ECA Multiplier <sup>(4)</sup>	0.483	0.680
LTA	6.64	6.26
AMEL Multiplier (95 <sup>th</sup> %) <sup>(5)(6)</sup>	<sup>(8)</sup>	1.3
<b>AMEL (µg/L)</b>	<sup>(8)</sup>	<b>8.1</b>
MDEL Multiplier (99 <sup>th</sup> %) <sup>(7)</sup>	<sup>(8)</sup>	2.1
<b>MDEL (µg/L)</b>	<sup>(8)</sup>	<b>13</b>

- 1. CTR aquatic life criteria, based on a hardness of 98 mg/L as CaCO<sub>3</sub>.
- 2. EPA Translator used as default.
- 3. ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
- 4. Acute and chronic ECA Multiplier based on a coefficient of variation of 0.35 and calculated at 99 percentile per section 1.4.B, Step 3 of SIP or per TSD 5.4.1,5.5.4
- 5. Assumes sampling frequency n=>4.
- 6. 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.
- 7. 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.
- 8. Limitations based on chronic LTA (Chronic LTA < Acute LTA)

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

	Acute	Chronic
Criteria (mg/L)	N/A	0.41
Dilution Credit	N/A	No Dilution
ECA	N/A	0.41
<b>AMEL (mg/L) <sup>(1)</sup></b>	N/A	<b>0.41</b>
MDEL/AMEL Multiplier <sup>(2)</sup>	N/A	2.01
<b>MDEL (mg/L)</b>	N/A	<b>0.82</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-9. WQBEL Calculations for Dichlorobromomethane**

	Acute	Chronic
Criteria (mg/L)	N/A	0.56
Dilution Credit	N/A	No Dilution
ECA	N/A	0.56
<b>AMEL (mg/L) <sup>(1)</sup></b>	N/A	<b>0.56</b>
MDEL/AMEL Multiplier <sup>(2)</sup>	N/A	2.01
<b>MDEL (mg/L)</b>	N/A	<b>1.1</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.

**Summary of Water Quality-based Effluent Limitations  
Discharge Point 001**

**Table F-11. Summary of Water Quality-based Effluent Limitations**

Parameter	Units	Effluent Limitations				Instantaneous	
		Average Monthly	Average Weekly	Maximum Daily	Annual Average	Minimum	Maximum
BOD 5-day @ 20°C	mg/L	10	15	20			
	lbs/day <sup>1</sup>	58	88	120			
Total Suspended Solids	mg/L	10	15	20			
	lbs/day <sup>1</sup>	58	88	120			
pH	standard units						8.5
Turbidity	NTU						10
Settleable Solids	mL/L	0.1		0.2			
Total Coliform Organisms	MPN/100 mL						240
Aluminum	ug/L	330		750			
Ammonia 1 April – 15 November	mg/L	0.60		1.2			
	lbs/day <sup>1</sup>	3.5		7.0			
Ammonia 16 November – 31 March	mg/L	1.2		2.1			
	lbs/day <sup>1</sup>	7.0		12			

Parameter	Units	Effluent Limitations					
		Average Monthly	Average Weekly	Maximum Daily	Annual Average	Instantaneous	
						Minimum	Maximum
Copper	ug/L	8.1		13.1			
Chlorodibromomethane	ug/L	0.41		0.82			
Dichlorobromomethane	ug/L	0.56		1.1			
Foaming Agents (MBAS)	ug/L				500		
Iron	ug/L				300		
Manganese	ug/L				50		
Nitrate + nitrite	mg/L	10					
Total Trihalomethanes	ug/L				80		

### 5. Whole Effluent Toxicity (WET)

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

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” (Basin Plan at 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." Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

- b. **Chronic Aquatic Toxicity.** Based on semiannual whole effluent chronic toxicity testing performed by the Discharger from January 2004 through December 2006, the discharge from the previous equivalent-to-secondary pond system does not nitrify, and the effluent ammonia concentration has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

Numeric chronic WET effluent limitations have not been included in this order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region<sup>2</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 revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.).

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<sup>2</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)

The Discharger has confirmed that existing toxicity events were caused due to high levels of ammonia from the equivalent-to-secondary pond treatment system. The current facility upgrade includes advanced biological treatment and nitrification to reduce ammonia in the effluent.

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. 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 work plan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if 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 daily discharge flow allowed in Section IV.A.1.b. of the Limitations and Discharge Requirements. Mass limitations are included for BOD, TSS, ammonia, and mercury.

### **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 US EPA 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 aluminum, ammonia, copper, chlorodibromomethane, dichlorobromomethane, and settleable solids as recommended by the TSD for the achievement of water quality

standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for BOD and TSS, weekly average effluent limitations have been supplemented with maximum daily effluent limitations. This Order utilizes only monthly limitations for foaming agents (MBAS), mercury, nitrate + nitrite, and total trihalomethanes. In lieu of weekly and monthly effluent limitations, this Order utilizes instantaneous minimum and/or maximum limitations for pH and annual average limitations for iron and manganese. Temperature, total coliform organisms, turbidity, acute toxicity, total residual chlorine, and average flow limitations are based on other periods. The rationale for using shorter averaging periods for these constituents is discussed in Section IV.C.3 of this Fact Sheet, above.

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

All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of the aluminum limitations. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. New information regarding the application of water quality criteria for aluminum, as discussed in the Section IV.C.3.e. of this Fact Sheet, technically justifies a less stringent aluminum effluent limitation. This new information which technically justifies the existing aluminum effluent limitation to be relaxed became available after the adoption of the aluminum effluent limitation in previous Order No. R5-2002-0020. The use of new information that becomes available after the adoption of an existing limitation and the corresponding relaxation of the existing aluminum limitation is in accordance with State and federal anti-backsliding provisions.

### 4. Satisfaction of Antidegradation Policy

- a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.
- b. **Groundwater.** The Discharger previously utilized stabilization ponds, storage ponds, overland flow and sludge storage basins for its equivalent-to-secondary. The Discharger is implementing Best Practicable Treatment or Control (BPTC) to protect groundwater by replacing the existing pond and overland flow system with a conventional secondary and tertiary wastewater treatment process.

Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). Percolation from the ponds, overland flow, and sludge storage may result in an increase in the concentration of these constituents in groundwater. The reduction of these constituents discharged to

ground water from the replacement of the ponds with a conventional treatment process is consistent with Resolution 68-16.

Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

- ii. the degradation is limited in extent;
- iii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
- iv. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- v. the degradation does not result in water quality less than that prescribed in the Basin Plan.

This Order requires the Discharger to evaluate the background groundwater quality and requires the implementation of BPTC measures to minimize impacts to groundwater if data shows the treatment process and/or effluent may be impacting the groundwater quality.

## **E. Interim Effluent Limitations**

The SIP, section 2.2.1, requires that if a compliance schedule greater than one year is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. Interim effluent limitations typically consist of a daily effluent concentration derived using sample data provided by the Discharger. In developing the interim limitations, when there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). When there are less than ten sampling data points available, the *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Thus, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily interim limitation (TSD, Table 5-2). If the statistically-projected interim limitation is less than the maximum observed effluent concentration, the interim limitation is established as the maximum observed concentration.

The maximum observed concentration (MEC) for copper among 10 samples is 13.7 ug/L. Based on the data set consisting of ten data points, the interim effluent limitation for copper is established as the mean value of 8.7 ug/L plus 3.3 times the standard deviation of 3.0 ug/L, resulting in an interim maximum daily limitation of 18.6 ug/L.

The maximum observed effluent concentration (MEC) of foaming agents (MBAS) among six samples is 3.62 mg/L. Based on the data set consisting of less than ten data points, the interim effluent limitation for foaming agents (MBAS) is established as 3.11 times the MEC of 3.62 mg/L, or 11.3 mg/L.

The Discharger is currently upgrading the existing treatment facility to include nitrification for reduction of ammonia in the facility effluent. Current nitrate and nitrite levels in the previous pond treatment system are not representative of future levels after the new nitrification process is in operation. Therefore, an existing observed data to establish an interim nitrate plus nitrite effluent limitation is not available. The measure of Total Kjeldahl Nitrogen (TKN) provides the potential maximum concentrations of nitrate plus nitrite. In the absence of effluent TKN monitoring information, best professional judgment was used to arrive to the following conclusions:

- (1) The influent TKN equals approximately 20 percent of the influent design BOD of 164 mg/L, or 53 mg/L, and
- (2) The new nitrification system, with further upgrades that includes denitrification, will remove approximately 20 percent of the influent TKN. Therefore, 80 percent of the influent TKN (20 percent removal) is 42 mg/L.
- (3) A reasonable interim nitrate plus nitrite effluent limitation in which the new nitrification system can reasonable achieve is 42 mg/L.

To protect the receiving water from further salinity degradation, an interim performance-based annual average EC effluent limitation of 1500 umhos/cm is included in this Order. This Order requires the Discharger to conduct site-specific studies to determine the appropriate EC level to protect beneficial uses. It is the intent of the Regional Water Board to include a final EC effluent limitation in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

The compliance schedules in this Order for chlorodibromomethane and dichlorobromomethane are less than one year. Therefore, in accordance with the SIP, interim limitations for these constituents are not required.

## **F. Land Discharge Specifications**

1. The Land Discharge Specifications included in Section IV.B. of this Order are necessary to protect the beneficial uses of the groundwater and to prevent nuisance.

## **G. Reclamation Specifications – N/A**

## 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 Regional 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 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, tastes and odors, temperature, toxicity, and turbidity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rational for these numeric receiving surface water limitations are as follows:

- a. **Bacteria.** The Basin Plan includes a water quality objective that “[i]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.” Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.
- b. **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.

- c. **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.
- d. **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.
- e. **Dissolved Oxygen.** The Colusa Basin Drain, to which the receiving water is tributary, has been designated as having the beneficial use of potential 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.
- f. **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.
- g. **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.
- h. **pH.** The Basin Plan includes water quality objective that “[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses” This Order includes receiving water limitations for both pH range and pH change.
- i. **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.
- j. **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.

- k. **Suspended Sediments.** 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.
- l. **Settleable Substances.** 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.
- m. **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.
- n. **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.
- o. **Temperature.** The Colusa Basin Drain, to which the receiving water is tributary, 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.
- p. **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.
- q. **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 between 0 and 5 Nephelometric Turbidity Units (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.”*

## **B. Groundwater**

1. The Discharger is initiating operation of a conventional secondary and tertiary treatment facility that is replacing its existing pond and overland flow treatment system. These facilities do not expose wastewater to the groundwater to the same extent as the previous pond system.
2. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
3. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwater designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 ml. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.
4. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

## VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional 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 and TSS reduction requirements). This Order includes influent monitoring for flow, BOD, TSS, pH, and electrical conductivity.

### B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater. To assess compliance with effluent limitations, this Order requires effluent monitoring for flow, BOD, TSS, total coliform organisms, settleable solids, turbidity, total residual chlorine, pH, temperature, ammonia, electrical conductivity (EC), aluminum, chlorodibromomethane, copper, dichlorobromomethane, foaming agents (MBAS), iron, manganese, mercury, nitrate + nitrite, total trihalomethanes, and acute whole effluent toxicity. Since the effluent hardness affects the toxicity of copper, this Order includes effluent monitoring for hardness.
2. Effluent monitoring for TDS is necessary to monitor the ratio of TDS to EC.
3. The SIP states that if “...all reported detection limits of the pollutant in the effluent are greater than or equal to the C [water quality criterion or objective] value, the RWQCB [Regional Water Board] shall establish interim requirements...that require additional monitoring for the pollutant...” All reported detection limits for the following priority pollutants are greater than or equal to corresponding applicable water quality criteria or objectives: 2,3,7,8-TCDD, acrylonitrile, 1,1-dichloroethylene, 2-chlorophenol, 2,4-dichlorophenol, pentachlorophenol, benzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-chloroethyl)ether, chrysene, dibenzo(a,h)anthracene, 3,3'-dichlorobenzidine, 2,4-Dinitrotoluene, 1,2-Diphenylhydrazine, hexachlorobenzene, indeno(1,2,3-cd)pyrene, n-nitrosodimethylamine, n-nitrosodi-n-propylamine, aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, chlordane, 4,4'-DDT, 4,4'-DDE, 4,4'-DDD,

dieldrin, alpha endosulfan, beta endosulfan, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260, and toxaphene. Effluent monitoring for these priority pollutants and pollutants of concern has been included in this Order in accordance with the SIP. In addition to the constituents discussed above, this Order includes monitoring for standard minerals, priority pollutants, and the non-CTR constituents identified in Attachment G. This monitoring is necessary to gather sufficient data for the subsequent reasonable potential analysis for future permit renewal/modifications.

4. This Order requires a constituent study for monitoring of carbofuran, dioxin and congeners, methoxychlor and phthalate esters because these constituents were detected in the effluent with estimated values that are of concern (existing in an impaired water body, or greater than the applicable criteria or screening value). This Order also requires a constituent study for copper and hardness to gather data that is representative of the newly operational secondary and tertiary treatment process, allowing a more accurate reasonable potential analysis to be conducted and modification of the copper effluent limitations, if necessary.

### **C. Whole Effluent Toxicity Testing Requirements**

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

### **D. Receiving Water Monitoring**

#### **1. Surface Water**

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

#### **2. Groundwater**

- a. Section 13267 of the California Water Code states, in part, *“(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region”* and *“(b) (1) In conducting an investigation..., the Regional Water Board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.”* The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board

shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program (Attachment E) is issued pursuant to California Water Code Section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.

- b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 68-16 and the Basin Plan.
- c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

## **E. Other Monitoring Requirements**

### **1. Pond Monitoring**

Pond Monitoring is required to assess compliance with the land discharge specifications. Land discharge specifications are imposed to prevent nuisance, protect the public health, and maintain the integrity of the treatment system.

## 2. **Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.6.a.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

## 3. **Water Supply Monitoring**

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

# VII. RATIONALE FOR PROVISIONS

## A. **Standard Provisions**

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

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

## B. **Special Provisions**

### 1. **Reopener Provisions**

- a. **Mercury.** This Order contains mass effluent limitations for mercury. This reopener provision allows the Regional Water Board to adjust the mercury limitations if mercury is found to be causing toxicity or if a TMDL program is adopted.
- b. **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.

- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic 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 copper. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- d. **Carbofuran, Copper and Hardness, Dioxin and congeners, Methoxychlor and Phthalate Esters.** This reopener provisions allow the Regional Water Board to reopen this Order for addition and/or modification of final effluent limitations for carbofuran, copper, dioxin and congeners, methoxychlor and phthalate esters based on results of the required constituent study in this Order.
- e. **Salinity Study.** This reopener provisions allow the Regional Water Board to reopen this Order for addition of final effluent limitations for EC, TDS, boron, sodium and chloride based on a review of the Salinity Study.
- f. **Municipal Beneficial Use De-designation.** The reopener provisions allow the Regional Water Board to reopen this Order for removal and/or modification of effluent limitations, based on the Regional Water Board adoption, and State Water Board and Office of Administrative Law approval, of a Basin Plan Amendment to de-designated the MUN beneficial use of the receiving water.

## 2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00.) Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from January 2004 through December 2006, the discharge has 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 EPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

**Monitoring Trigger.** A numeric toxicity monitoring trigger of > 1 TUC (where TUC = 100/NOEC) is applied in the provision, because this Order does not allow any

dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits 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 Discharger has confirmed that existing toxicity events were caused due to high levels of ammonia. The current facility upgrade includes advanced biological treatment and nitrification to reduce ammonia in the effluent. 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.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of 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.

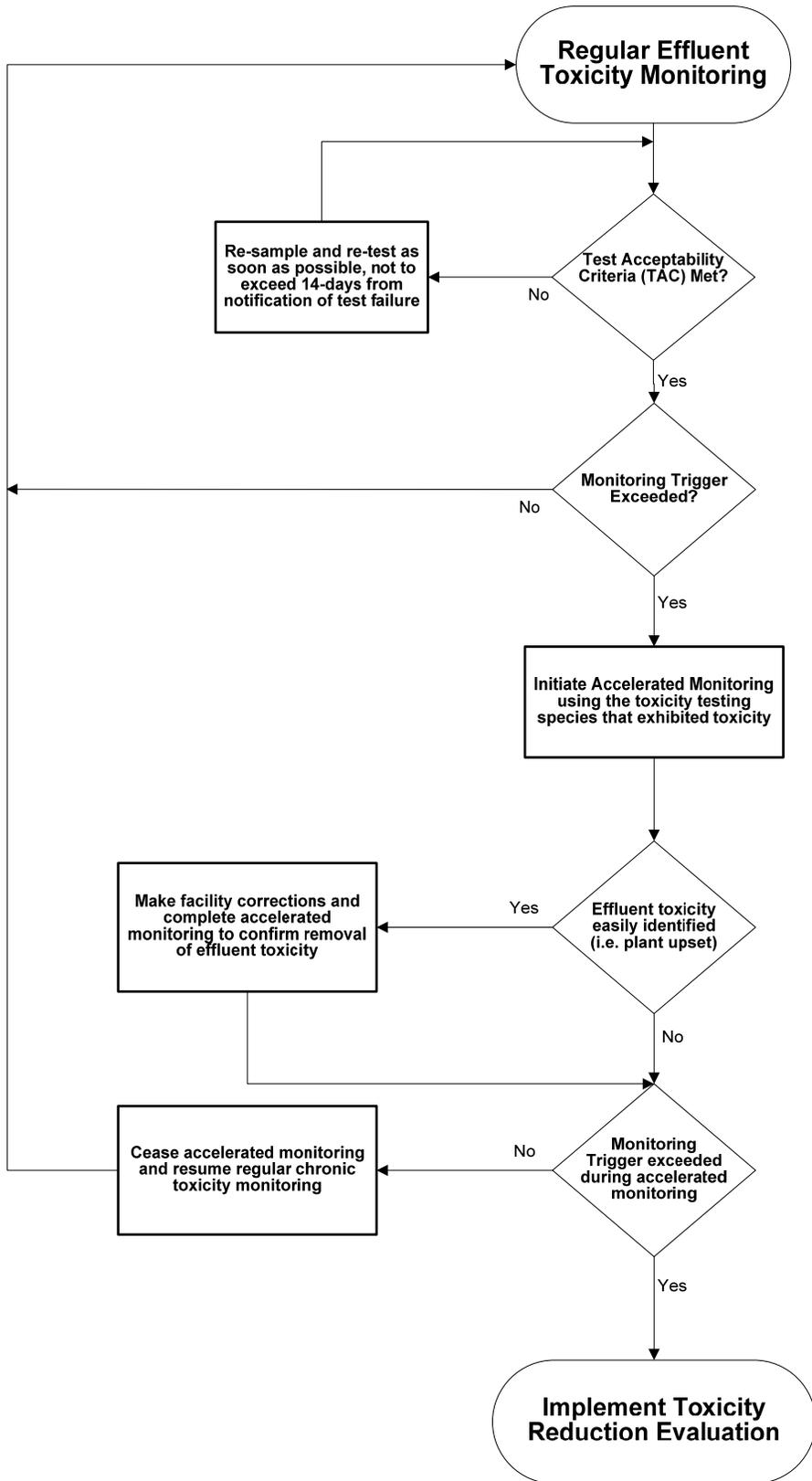
See the WET Accelerated Monitoring Flow Chart (Figure F-X), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

**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-3  
WET Accelerated Monitoring Flow Chart**



- b. **Best Practicable Treatment or Control (BPTC) Evaluation Tasks.** The previous WWTP operation included equivalent to secondary treatment through ponds. The pond and overland flow treatment system is being replaced with a conventional secondary and tertiary treatment facility. This Order requires the Discharger to evaluate each component of the WWTP to evaluate BPTC.
- c. **Groundwater Monitoring (Special Provisions VI.C.2.d.).** To determine compliance with Groundwater Limitations V.B., the Discharger is required to evaluate the adequacy of its groundwater monitoring network. This provision requires the Discharger to evaluate its groundwater monitoring network to ensure there are one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. Currently, there are no groundwater monitoring wells downgradient of the unlined sludge drying beds and lined aerated lagoons. The Discharger must install new groundwater monitoring wells, if necessary, collect one year of monitoring data, and submit a report evaluating the underlying groundwater by 15 months after the effective date of this Order. If the monitoring shows that any constituent concentrations are increased above background water quality, by 2 years after the effective date of this Order, the Discharger shall submit a technical report describing the groundwater evaluation report results and critiquing each evaluated facility component with respect to BPTC and minimizing the discharge's impact on groundwater quality.
- d. **Salinity Study.** The Ayers and Westcot 1985 Study indicates that site-specific factors, such as rainfall and flooding, should be considered in determining protective EC levels in irrigation water. This Order requires the Discharger to conduct a site-specific study that assesses the influence of soil chemistry, climatic conditions, rainfall and flooding, and background water quality on EC/salinity requirements for irrigation waters downstream of the discharge.
- e. **Carbofuran, Copper and Hardness, Dioxin and congeners, Methoxychlor and Phthalate Esters Constituent Study.** This Order requires the Discharger to complete and submit a Constituent Study for dioxin, methoxychlor and phthalate esters. Based on a review of the results of the Constituent Study, this Order may be reopened to add final effluent limitations for dioxin, methoxychlor and/or phthalate esters.

### 3. Best Management Practices and Pollution Prevention

- b. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for foaming agents, and nitrate plus nitrite shall, at minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:

- a. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
- b. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.
- c. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.
- d. A plan for monitoring the results of the pollution prevention program.
- e. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.
- f. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.
- g. A description of the Discharger's existing pollution prevention programs.
- h. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
- i. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

The compliance schedules included in this Order for chlorodibromomethane, dibromochloromethane and trihalomethanes are for less than one year. Therefore, the requirement for the Discharger to submit annual progress reports and a Pollution Prevention Plan are not applicable.

- c. **Salinity Evaluation and Minimization Plan.** To address sources of salinity from the wastewater treatment system, this Order requires the Discharger to prepare and implement a salinity evaluation and minimization plan.
- d. **Salinity Reduction.** This Order requires the Discharge to provide annual progress reports demonstrating progress towards the reduction of salinity discharged to the receiving waters.

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

- a. **Treatment Pond Operating Requirements.** This Order requires the Discharger to maintain the ponds to protect public health and prevent nuisance.

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

- a. **Pretreatment Requirements – N/A**

#### **6. Compliance Schedules**

The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

- a. The Discharger submitted a request, and justification dated 30 January 2008 for a compliance schedule for copper and ammonia. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. The proposed compliance date of 1 August 2008 is before the effective date of this Order. However, new and more stringent water quality based effluent limitations are included in this Order in which the Discharger may not be able to immediately comply. Therefore, a compliance schedule for the new, final, water quality-based effluent limitations for copper of 18 May 2010 is included in this Order.
- b. The Discharger submitted a request, and justification dated 30 January 2008 for a compliance schedule for chlorodibromomethane, dichlorobromomethane, total trihalomethanes, foaming agents, and nitrate plus nitrite. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. This Order establishes a compliance schedule for the new, final, water quality-based effluent limitations for chlorodibromomethane, and dichlorobromomethane, and requires full compliance by 1 May 2009. This Order also contains a compliance schedule for the new trihalomethanes, foaming agents, and nitrate plus nitrite effluent limitations that are based on a new interpretation of the beneficial uses of the receiving water. The compliance date for the trihalomethanes effluent limitation is 1 May 2009 and the compliance date for foaming agents, and nitrate plus nitrite effluent limitations is 1 August 2013.

### **VIII. PUBLIC PARTICIPATION**

The California Regional Water Quality Control Board, Central Valley Region (Regional 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 City of Colusa WWTP. As a step in the WDR adoption process, the Regional Water Board staff

has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

**A. Notification of Interested Parties**

The Regional 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 to all interested parties and through posting of the Notice of Public Hearing at local public building sites (City Hall and entrance of WWTP).

**B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on 13 June 2008

**C. Public Hearing**

The Regional 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: 31 July/1 August 2008  
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 Regional 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/centralvalley/> 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 Regional Water Board regarding the final WDRs. The petition must

be submitted within 30 days of the Regional 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 (RWD), 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 Regional Water Board by calling (916) 464-3291.

**F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional 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 Ms. Diana Messina at (916) 464-4828 or [dcmessina@waterboards.ca.gov](mailto:dcmessina@waterboards.ca.gov).

## ATTACHMENT G – PRIORITY POLLUTANTS AND CONSTITUENTS OF CONCERN

### CTR CONSTITUENTS

#### Priority Pollutants

1	Antimony	41	1,1,1-Trichloroethane	81	Di-n-butyl Phthalate
2	Arsenic	42	1,1,2-Trichloroethane	82	2,4-Dinitrotoluene
3	Beryllium	43	Trichloroethylene	83	2,6-Dinitrotoluene
4	Cadmium	44	Vinyl Chloride	84	Di-n-Octyl Phthalate
5a	Chromium III	45	2-Chlorophenol	85	1,2-Diphenylhydrazine
5b	Chromium VI	46	2,4-Dichlorophenol	85	Fluoranthene
6	Copper	47	2,4-Dimethylphenol	87	Fluorene
7	Lead	48	2-Methyl-4,6-Dinitrophenol	88	Hexachlorobenzene
8	Mercury	49	2,4-Dinitrophenol	89	Hexachlorobutadiene
9	Nickel	50	2-Nitrophenol	90	Hexachlorocyclopentadiene
10	Selenium	51	4-Nitrophenol	91	Hexachloroethane
11	Silver	52	4-Chloro-3-Methylphenol	92	Indeno(1,2,3-c,d)Pyrene
12	Thallium	53	Pentachlorophenol	93	Isophorone
13	Zinc	54	Phenol	94	Naphthalene
14	Cyanide	55	2,4,6-Trichlorophenol	95	Nitrobenzene
15	Asbestos	56	Acenaphthene	96	N-Nitrosodimethylamine
16	2,3,7,8-TCDD (Dioxin)	57	Acenaphthylene	97	N-Nitrosodi-n-Propylamine
17	Acrolein	58	Anthracene	98	N-Nitrosodiphenylamine
18	Acrylonitrile	59	Benzidine	99	Phenanthrene
19	Benzene	60	Benzo(a)anthracene	100	Pyrene
20	Bromoform	61	Benzo(a)pyrene	101	1,2,4-Trichlorobenzene
21	Carbon Tetrachloride	62	Benzo(b)fluoranthene	102	Aldrin
22	Chlorobenzene	63	Benzo(g,h,i)perylene	103	Alpha BHC
23	Chlorodibromomethane	64	Benzo(k)fluoranthene	104	Beta BHC
24	Chloroethane	65	Bis(2-chloroethoxy) Ether	105	Gamma BHC
25	2-Chloroethylvinyl ether	66	Bis(2-chloroethyl) Ether	106	Delta BHC
26	Chloroform	67	Bis(2-chloroisopropyl) Ether	107	Chlordane
27	Dichlorobromomethane	68	Bis(2-ethylhexyl) Phthalate	108	4,4'-DDT
28	1,1-Dichloroethane	69	4-Bromophenyl Phenyl Ether	109	4,4'-DDE
29	1,2-Dichloroethane	70	Butylbenzyl Phthalate	110	4,4'-DDD
30	1,1-Dichloroethylene	71	2-Chloronaphthalene	111	Dieldrin
31	1,2-Dichloropropane	72	4-Chlorophenyl Phenyl Ether	112	Alpha Endosulfan
32	1,3-Dichloropropylene	73	Chrysene	113	Beta Endosulfan
33	Ethylbenzene	74	Dibenzo(a,h)anthracene	114	Endosulfan Sulfate
34	Methyl Bromide	75	1,2-Dichlorobenzene	115	Endrin
35	Methyl Chloride	76	1,3-Dichlorobenzene	116	Endrin Aldehyde
36	Methylene Chloride	77	1,4-Dichlorobenzene	117	Heptachlor
37	1,1,2,2-Tetrachloroethane	78	3,3-Dichlorobenzidine	118	Heptachlor Epoxide
38	Tetrachloroethylene	79	Diethyl Phthalate	119 to 125	PCBs (Aroclors)
39	Toluene	80	Dimethyl Phthalate	126	Toxaphene
40	1,2-trans-Dichloroethylene				

**NON-CTR CONSTITUENTS OF CONCERN**

**Standard Minerals:**

Boron	Iron	Potassium
Calcium	Magnesium	Sodium
Chloride	Manganese	Total Alkalinity (including alkalinity series)
Hardness	Phosphorus	

Analysis must include verification that the analysis is complete (i.e. cation/anion balance)

**Non CTR Persistent Chlorinated Hydrocarbon Pesticides:**

Captan	Dicofol	Mirex
2,4-D	Dinoseb	PCNB (Pentachloronitrobenzene)
2,4-DB	Isodrin (an isomer of Aldrin)	Perthane
2,4-D compounds	Kepone (Chlordecone)	Strobane
Dalapon	MCPA	2,4,5-T
Dicamba	MCPP	2,4,5,TP (Silvex)
Dichloran	Methoxychlor	2,4,5-T compounds
Dichloroprop		

**Other Constituents of Concern:**

Alachlor	Di(2 ethylhexyl)adipate	Phosphorus
Atrazine	Endothal	Picloram
Azinphos-methyl	Ethylene dibromide	Simazine
Barium	Flouride	Styrene
Bentazon	Glyphosate	Sulfate
Carbofuran	MBAS	Sulfite
Chlorpyrifos	Malathion	Thiobencarb
Chromium, Total	Methoxychlor	Tributyltin
Dalapon	Methyl parathion	Trichlorofluoromethane
Diazinon	Molinate (ordram)	1,1,2-trichloro,1,2,2-trifluoromethane
Diquat	MTBE	Xylenes
Dinoseb	Oil and Grease	
1,2-dibromo-3-chloropropane (DBCP)	Oxamyl	

**ATTACHMENT H - REASONABLE POTENTIAL AND STATISTICS**

Parameter <sup>1,4,5</sup>	Units	MEC	Mean	Std Dev	CV	# samples	# ND	Criteria used, C	MEC >C?
<b>CTR constituents</b>									
Antimony	ug/L	0.2	0.18	0.38	0.6	6	1	6	N
Arsenic	ug/L	6.7	3.5	4.7	0.6	6	0	10	N
Chromium	ug/L	2.3	1.3	0.76	0.6	6	0	204	N
Copper	ug/L	13.7	8.7	3.0	0.35	10	0	8.8	Y
Lead	ug/L	0.9	0.69	0.24	0.6	6	0	2.97	N
Mercury	ug/L	0.0468	0.017	0.011	0.6	6	0	0.05	N
Nickel	ug/L	6	3.9	2.1	0.6	6	0	66	N
Selenium	ug/L	1.9	1.3	1.2	0.6	6	1	5	N
Silver	ug/L	0.1	<sup>2</sup>	<sup>2</sup>	0.6	6	5	3.9	N
Thallium	ug/L	0.01	<sup>2</sup>	<sup>2</sup>	0.6	6	5	1.7	N
Zinc	ug/L	90	30	21	0.6	7	0	117	N
Cyanide	ug/L	3	<sup>2</sup>	<sup>2</sup>	0.6	6	5	5.2	N
Chlorodibromomethane	ug/L	7	2.5	34	0.6	6	4	0.41	Y
Total Trihalomethanes	ug/L	113.2	23.6	124	0.6	23	12	80	Y
Dichlorobromomethane	ug/L	10.7	3.3	29	0.6	6	2	0.56	Y
Toluene	ug/L	4	2.6	7.3	0.6	6	1	40	N
Phenol	ug/L	0.8	0.38	0.22	0.6	6	3	300	N
Bis(2-ethylhexyl)Phthalate	ug/L	6	3.7	3.0	0.6	5	1	1.8	N <sup>6</sup>
Butylbenzyl Phthalate	ug/L	0.4	<sup>2</sup>	<sup>2</sup>	0.6	6	5	3	N
1,4 Dichlorobenzene	ug/L	0.1	<sup>2</sup>	<sup>2</sup>	0.6	6	5	5	N
Diethyl Phthalate	ug/L	0.2	<sup>2</sup>	<sup>2</sup>	0.6	6	5	3	N
Di-n-Butyl Phthalate	ug/L	8	5.5	13	0.6	6	2	3	N
Naphthalene	ug/L	0.1	<sup>2</sup>	<sup>2</sup>	0.6	6	5	21	N
<b>Non-CTR constituents</b>									
Aluminum	ug/L	1270	419	350	0.8	24	2	750 <sup>5</sup>	Y
Barium	ug/L	57.6	42.4	10.5	0.6	6	0	1000	N
Fluoride	mg/L	0.66	0.38	0.31	0.6	6	0	1000	N
Iron	ug/L	943	464	490	0.6	7	0	300	Y
Manganese	ug/L	133	104	78	0.6	7	0	50	Y
Ammonia	mg/L	7.04	4.9	6.4	0.6	6	0		Y
Chloride	mg/L	140	120	30	0.6	6	0	<sup>3</sup>	<sup>3</sup>
Foaming Agents (MBAS)	mg/L	3.62	1.30	3.29	0.6	6	0	0.5	Y
Nitrate	mg/L	3.38	1.12	6.45	0.6	6	2	10	N
Nitrite	mg/L	0.54	0.26	0.92	0.6	6	1	1	N
Phosphorus	mg/L	12.5	5.9	2.7	0.6	6	0	none	N
Electrical Conductivity	umhos/cm	1480	1200	230	0.6	6	0	<sup>3</sup>	<sup>3</sup>
Sulfate	mg/L	169	134	21	0.6	6	0	250	N
Sulfide	ug/L	290	177	494	0.6	6	2	none	N
Sulfite	mg/L	6	3.4	2.6	0.6	5	1	none	N
TDS	ug/L	928	700	250	0.6	6	0	<sup>3</sup>	<sup>3</sup>
Carbofuran	ug/L	3.5 (j-flag)	2.3	5.8	0.6	4	2	0.5	N
Methoxychlor	ug/L	0.125	<sup>2</sup>	<sup>2</sup>	0.6	4	3	ND	N
Calcium	mg/L	25	23	3.6	0.6	2	0	none	N
Magnesium	mg/L	18	18	0	0.6	2	0	none	N
OCDD	pg/L	3.8 E-5	2.5 E-5	2.9 E-05	0.6	3	0	1.4 E-12	N
1,2,3,4,6,7,8-HeptaCDD	pg/L	10.5 E-6	8.9E-06	2.6 E-06	0.6	2	0	1.4 E-10	N

1. This table includes only those constituents that were detected in the effluent during the reasonable potential dataset period
2. For constituents with only one detected value, the mean and standard deviation were not calculated.
3. These constituents have agricultural screening values as discussed in the fact sheet.
4. The following priority pollutants not listed in this table were analyzed in accordance with the SIP, but not detected in the effluent. 2,3,7,8-TCDD, acrylonitrile, 1,1-dichloroethylene, 2-chlorophenol, 2,4-dichlorophenol, pentachlorophenol, benzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-chloroethyl)ether, chrysene, dibenzo(a,h)anthracene, 3,3'-dichlorobenzidine, 2,4-Dinitrotoluene, 1,2-Diphenylhydrazine, hexachlorobenzene, indeno(1,2,3-cd)pyrene, n-nitrosodimethylamine, n-nitrosodi-n-propylamine, aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, chlordane, 4,4'-DDT, 4,4'-DDE, 4,4'DDD, dieldrin, alpha endosulfan, beta endosulfan, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260, and toxaphene.
5. cis-1,2-dichloroethene; MTBE; trichlorofluoromethane ; 1,1,2-trichloro-1,2,2-trifluoroethane; styrene; xylenes; 1,2-dibromo-3-chloropropane; 2,4,5-TP; 2,4-D; alachlor; atrazine; bentazon; chlorpyrifos; dalapon; di(2-ethylhexyl)adipate; diazinon; dinoseb; diquat; endothall; ethylene dibromide; glyphosate; molinate; oxamyl; picloram; simazine; thiobencarb; tributyltin; and dichlorotrifluoroethane. Aluminum criteria also includes 200 ug/l secondary MCL from the California Department of Public Health.
6. Data determined to be unrepresentative due to potential contamination of water quality samples.