

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

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ORDER NO. R5-2011-XXXX
NPDES NO. CA0078034

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

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

Table 1. Discharger Information

Discharger	City of Willows
Name of Facility	Willows Wastewater Treatment Plant
Facility Address	1600 Tehama Street
	Willows, CA 95988
	Glenn County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the City of Willows from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
D-001	Treated Municipal Wastewater	39 ° 29' 34" N	122° 11' 16" W	Agricultural Drain C, tributary to Logan Creek, Colusa Basin Drain
D-002	Treated Municipal Wastewater	39 ° 30' 08" N	122 ° 11' 28" W	GCID Lateral 26-2, Colusa Basin Drain

Table 3. Administrative Information

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

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

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	City of Willows
Name of Facility	Willows Wastewater Treatment Plant
Facility Address	1600 Tehama Street
	Willows, CA 95988
	Glenn County
Facility Contact, Title, and Phone	Greg Tyhurst, City of Willows Public Works Director, (530) 934-7041
Mailing Address	201 N. Lassen Street Willows, CA 95988
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	1.2 million gallons per day

II. FINDINGS

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

A. Background. The City of Willows (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2006-0009 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078034. The Discharger submitted a Report of Waste Discharge, dated 1 July 2010, and applied for a NPDES permit renewal to discharge up to 1.2 million gallons daily of treated wastewater from Willows Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 27 July 2010.

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 a Publicly Owned Treatment Works (POTW). SouthWest Water Company (contract operator) operates the wastewater treatment plant. The treatment system at the facility consists of a wastewater collection, treatment, and disposal system and provides sewage service to the City of Willows. The treatment system includes influent screening, extended aeration (biolac system), activated sludge with two secondary clarifiers, nine continuous backwash sand filters, disinfection with sodium hypochlorite, dechlorination using sodium bisulfite injection, equalization and emergency storage ponds, and sludge storage lagoons. Wastewater is discharged from Discharge Point No. D-001 (see table on cover page) to Agricultural Drain C, a tributary to Logan Creek or from Discharge Point D-002 (see table on cover page) Glenn-Colusa Irrigation District (GCID) Lateral 26-2, waters of the United States, and tributaries to the Colusa Basin Drain within the Colusa Trough Hydrologic Sub Area

(520.21) of the Glenn Colusa Hydrologic Area in the Colusa Basin Hydrologic Unit. This wastewater treatment plant was upgraded from a “pond” system in 2007. There are groundwater monitoring wells monitoring the ponds, which were installed in 1991, and have not detected any constituents of concern in the groundwater. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

- C. Legal Authorities.** This Order is issued pursuant to Section 402 of the Clean Water Act (CWA) and implementing regulations adopted by U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (Water Code; commencing with Section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4, Division 7 of the Water Code (commencing with Section 13260).
- D. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through J are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code Section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code Sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations Title 40 of the Code of Federal Regulations (CFR) Part 122.44 (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. Water Quality-Based Effluent Limitations (WQBELs).** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, which is necessary to achieve water quality standards. The Central Valley Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet (Attachment F).

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all

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

H. Water Quality Control Plans. The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised September 2009)*, for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. 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 GCID Lateral 26-2 or Agricultural Drain C, but does identify present and potential uses for Colusa Basin Drain, to which GCID Lateral 26-2 and Agricultural Drain C, via Logan Creek, is tributary. According to the Basin Plan, municipal and domestic supply is not a beneficial use of the Colusa Basin Drain.

However 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 and 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 Central Valley Water Boards. In accordance with Chapter IV of the Basin Plan, the Central Valley Water Board must adopt a formal Basin Plan Amendment to grant an exception to Resolution No. 88-63. Therefore, until the Central Valley 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 receiving water are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
D-001 and D-002	Colusa Basin Drain	<p>Existing: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); and wildlife habitat (WILD).</p> <p>Intermittent: Ground water recharge (GWR), freshwater replenishment (FRSH).</p>

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as “...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)” The Basin Plan also states, “Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.” Colusa Basin Drain is listed as a WQLS for Azinphos-methyl, Carbofuran, Diazinon, Group A Pesticides, Malathion, and Methyl Parathion in the 303(d) list of impaired water bodies. Effluent limitations applicable to this listing are included in this Order.

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 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the State. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.
- J. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

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

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

Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. This Order does not include compliance schedules and interim effluent limitations.

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

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, percent removal requirements for 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), Total Coliform Organisms and pH. The WQBELs consist of restrictions on Chlorine Residual, Ammonia, BOD₅, TSS, Electrical Conductivity (EC) and Toxicity. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations for Ammonia Nitrate, Dichloromochloromethane, Dichlorobromomethane and

Electrical Conductivity to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Central Valley Water Board has considered the factors in CWC Section 13241 in establishing these requirements.

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

- N. Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.
- O. Anti-Backsliding Requirements.** Sections 303(d)(4) and 402(o)(2) of the CWA and Federal Regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R5-2006-0009.
- P. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code Sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. Sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

- Q. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code Sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.
- R. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.
- S. Provisions and Requirements Implementing State Law.** The provisions/requirements in Subsections IV.B, V.B, and VI.C.4 of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- T. Notification of Interested Parties.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements (WDRs) for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the attached Fact Sheet of this Order.
- U. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the attached Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED, that this Order supercedes Order No. R5-2006-0009 except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (commencing with Section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code (CWC).
- D.** The Discharger shall not allow pollutant-free wastewater to be discharged into the, treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
- E.** The discharge of hazardous or toxic substances, which may include laboratory and water treatment chemicals, solvents, or petroleum products (including oil, grease, gasoline and diesel) to surface waters or groundwater is prohibited.
- F.** The discharge of hazardous waste, as defined at Title 23, Division 3, Chapter 15, Article 2, Section 2521 of the CCR or designated waste, as defined at Section 13173 of the CWC, is prohibited.
- G.** Neither the discharge nor its treatment shall cause pollution as defined in Section 13050 of the CWC.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. D-001 (Ag Drain C) and D-002 (GCID Lateral 26-2)

1. Final Effluent Limitations – Discharge Point No. D-001 (Ag Drain C) and D-002 (GCID Lateral 26-2)

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. D-001 and D-002, with compliance measured at Monitoring Locations as described in the Monitoring and Reporting Program:

Table 6. Final Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Other
Biochemical Oxygen Demand 5-day @ 20°C	mg/L ^a	10	15	30	
	lbs/day ^b	100	150	300	
Total Suspended Solids	mg/L ^a	10	15	30	
	lbs/day ^b	100	150	300	
Total Residual Chlorine	mg/L			0.02 (1-hr average)	0.01 (4-Day Average)
Total Coliform Bacteria	MPN/100 mL			23	2.2 (7-Day Median)
Nitrate	mg/L	10			
Ammonia ^c	mg/L	1.30 (Ag Drain C), 0.63 (GCID Lateral 26-2)		2.61 (Ag Drain C), 1.27 (GCID Lateral 26-2)	
	lbs/day ^b	13.01 (Ag Drain C), 6.33 (GCID Lateral 26-2)		26.11 (Ag Drain C), 12.70 (GCID Lateral 26-2)	
Ammonia ^d	mg/L	1.43 (Ag Drain C), 0.77 (GCID Lateral 26-2)		2.87 (Ag Drain C), 1.55 (GCID Lateral 26-2)	
	lbs/day ^b	14.32 (Ag Drain C), 7.75 (GCID Lateral 26-2)		28.74 (Ag Drain C), 15.55 (GCID Lateral 26-2)	
Dibromochloromethane	ug/L	0.41	0.82		
Dichlorobromomethane	ug/L	0.56	1.13		
Electrical Conductivity					845(Annual Average)

^a To be ascertained by a 24-hour composite
^b Based upon a design treatment capacity of 1.2 mgd
^c For the period of May 1 through October 31
^d For the period of November 1 through April 30

- b. **Percent Removal.** The average monthly percent removal of 5-day Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) shall not be less than 85 percent.
- c. **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.
- d. **Chronic Whole Effluent Toxicity.** There shall be no chronic whole effluent toxicity in the effluent discharge.
- e. **pH.** The discharge shall not have a pH less than 6.5 nor greater than 8.5.
- f. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 1.2 mgd.

2. Interim Effluent Limitations - Not Applicable

B. Land Discharge Specifications - Not Applicable

C. Reclamation Specifications - Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the GCID Lateral 26-2 or Ag Drain C:

- 1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than four samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
- 2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
- 3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
- 4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
- 5. **Dissolved Oxygen:**

- a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
 - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
 - c. The dissolved oxygen concentration to be reduced below **7.0 mg/L** at any time.
- 6. Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
- 7. Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
- 8. pH.** The pH to be depressed below 6.5 nor raised above 8.5, nor changes in normal ambient pH levels to be exceeded by more than 0.5 units.
- 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. 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.
- 16. Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
- 17. Turbidity.** The turbidity to increase as follows:
 - a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
 - b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
 - c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
 - d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
 - e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

- 1.** Release of waste constituents from any storage, treatment, or disposal component associated with the Facility shall not cause or contribute to, in combination with other sources of the waste constituents, groundwater within influence of the Facility to contain:
 - a. Taste or odor-producing constituents, toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses;

- b. Waste constituent concentrations in excess of water quality objectives or background water quality, whichever is greater; and
- c. Waste constituent concentrations in excess of the concentrations specified below or background water quality, whichever is greater:
- d. Total coliform organisms to exceed 2.2 MPN/100mL over any seven-day period.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all (federal NPDES standard conditions from 40 CFR Part 122) 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 CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for

modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

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

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

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

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

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

- e.** The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f.** The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g.** The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h.** A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

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

The technical report shall:

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

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

- k.** A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and local posting by the Discharger. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l.** The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, Sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- m.** The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, Sections 13385, 13386, and 13387.
- n.** For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a 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).
- o.** In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Central Valley Water Board waives confirmation. The written notification shall include the information

required by the Standard Provision contained in Attachment D Section V.E.1. [40 CFR 122.41(I)(6)(i)].

- p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- q. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

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

B. Monitoring and Reporting Program Requirements

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

C. Special Provisions

1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including, but not limited to:
 - i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
 - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

- b.** This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. Constituent Study.** This Order requires the Discharger prepare constituent study following CWC Section 13263.3(d)(3) for Ammonia, Nitrate, Dichlorobromomethane and Dibromochloromethane. Based on a review of the constituent study, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.
- e. 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.
- f. Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for inorganic constituents. An acceptable WER can be used to adjust aquatic life-based water quality standards. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators and submits an approved report, this Order may be reopened to modify the effluent limitations for the applicable constituents.
- g. Effluent Quality and Treatment Performance.** The treatment processes employed at the treatment plant were designed and intended to provide specific pollutant removal efficiency. This Order contains effluent limitations that are partially based on the treatment plant's ability to remove pollutants. This Order also considers the assimilative capacity in the receiving water to minimize the impact of pollutants discharged from the treatment plant. Therefore, if a trend of declining treatment plant pollutant removal efficiency, or a trend of increasing

effluent pollutant concentrations is observed, the Discharger is required to submit an Effluent Quality and Treatment Performance Study that identifies the cause of the change in effluent quality. If the Central Valley Board determines that the change and resulting degradation is not warranted or not in compliance with the anti-degradation policy, then this Order may be reopened, and the effluent limitations tightened, or other regulatory measures may be employed to ensure that the quality of the receiving water is not unnecessarily degraded.

- h. Constituents of Emerging Concern (CECs).** The State Water Resources Control Board is conducting studies on CECs discharged from wastewater treatment plants. Upon completion of the studies and formulation of recommendations for CEC monitoring, this Order may be reopened for addition of monitoring or special studies of CECs in the treatment plant discharge.
- i. Reasonable Potential for Constituents with Insufficient Information.** This Order may be reopened, and appropriate effluent limitations added, if results from the Monitoring and Reporting Program indicate additional constituents are present at concentrations that have the reasonable potential to cause or contribute to an exceedance of applicable water quality criteria or objectives.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits a pattern of toxicity exceeding the numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Workplan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.
 - i. Initial Investigative TRE Workplan.** Within **90 days** of the effective date of this Order, the Discharger shall submit to the Central Valley Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer. This should be a one to two page document including, at a 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;

accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

- (1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
- (2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
- (3) A schedule for these actions.

b. Constituent Study. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives for Ammonia, Nitrate, Dichlorobromomethane and Dibromochloromethane. The Discharger shall comply with the following time schedule in conducting a study of these constituents' potential effect in surface waters:

Table 7. Constituent Study

<u>Task</u>	<u>Compliance Date</u>
i. Submit Workplan and Time Schedule	Within 6 months following the effective date of this Order
ii. Begin study	Within 3 months of Central Valley Water Board approval of Workplan and Time Schedule
iii. Complete study	As established by Task i.
iv. Submit study report	60 days following completion of Task iii. (no greater than 2 years after the effective date of this Order)

c. Best Practical Treatment or Control (BPTC). The Discharger shall submit, a BPTC Evaluation Work Plan for a comprehensive technical evaluation of the Facility's waste treatment control, to determine BPTC of its discharge, to meet requirements of State Water Board Resolution 68-16. The work plan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule for completing the comprehensive technical evaluation.

Following completion of the evaluation, the Discharger shall submit to the Central Valley Water Board, a technical report describing the evaluation's results and critiquing the treatment facility with respect to the BPTC. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications to achieve BPTC and identify the source(s) of funding and proposed schedule for modifications. The Discharger shall comply with the following schedule in conducting a BPTC Study.

Table 8. BPTC Study

<u>Task</u>	<u>Compliance Date</u>
i. Submit Work Plan and Time Schedule for approval by the Executive Officer.	Within 6 months following the effective date of this Order.
ii. Commence comprehensive evaluation	30 days following Executive Officer approval of Task i.
iii. Complete study and submit summary report	As established by Task i and/or 2 years following Task ii, whichever is sooner.

d. Effluent and Receiving Water Characterization Study. An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third and fourth year of this permit term, the Discharger shall conduct annual monitoring of the effluent at EFF-001 and of the receiving water at RSW-001 or RSW-003 (dependent upon which receiving water location is being used) for all priority pollutants and other constituents of concern as described in Attachment I. Dioxin and Furan sampling shall be performed only twice during the third year, as described in Attachment J. The report shall be completed in conformance with the following schedule.

Table 9. Effluent and Receiving Water Characterization Study

<u>Task</u>	<u>Compliance Date</u>
i. Submit Work Plan and Time Schedule	No later than 2 years 6 months from adoption of this Order
ii. Conduct annual ¹ monitoring	During third/fourth year of permit term
iii. Submit Final Report	6 months following completion of final monitoring event
¹ Dioxin and Furan sampling shall be performed only twice during the third year, as described in Attachment J.	

3. Best Management Practices and Pollution Prevention

a. Pollutant Minimization Program (PMP)

The Discharger shall develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above

an effluent limitation and either: (1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or (2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in the Monitoring and Reporting Program (Attachment E, Section X.B.4).

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Central Valley Water Board:

- i. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;
 - ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;
 - iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
 - iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
 - v. An annual status report that shall be sent to the Central Valley Water Board including:
 - (a) All PMP monitoring results for the previous year;
 - (b) A list of potential sources of the reportable priority pollutant(s);
 - (c) A summary of all actions undertaken pursuant to the control strategy; and
 - (d) A description of actions to be taken in the following year.
- b. Salinity Reduction Goal.** The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to Colusa Basin Drain. The Central Valley Water Board finds that an annual average salinity of 845 $\mu\text{mhos/cm}$ as electrical conductivity is a reasonable intermediate goal that can be achieved during this permit term. This is a performance based effluent EC limitation calculated as the 99.9 percentile of the running average based on current effluent data. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).
- c. Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a Salinity Evaluation and Minimization Plan to address sources of salinity from the Facility. The plan shall be completed and submitted to the Central Valley Water Board **within 6 months of the adoption date of this Order** for the approval by the Executive Officer.

Table 10. Salinity Evaluation and Minimization Plan

<u>Task</u>	<u>Compliance Date</u>
1. Submit Work Plan and Time Schedule	Within 6 months of the effective date of the Order
2. Begin Study	Within 3 months of Central Valley Water Board approval of Workplan and Time Schedule
3. Complete Study	As established by Task 1
4. Submit Final Report	60 days following completion of Task 3 (no greater than 2 years after the effective date of this Order)

4. Construction, Operation and Maintenance Specifications

a. Flow Equalization Storage Basin 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. Basins 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 2 feet (measured vertically to the lowest point of overflow) at the last downstream pond.

b. Turbidity Operational Requirements. The Discharger shall operate the treatment system to ensure that the turbidity measured at EFF-001, as described in the MRP (Attachment E), shall not exceed:

- i. 2 NTU as a daily average, and
- ii. 5 NTU as a daily maximum.

5. Special Provisions for Municipal Facilities

a. Sludge/Biosolids Treatment or Discharge Specifications

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

- i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Central Valley Water Board will satisfy these specifications.
- ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.
- iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in Section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in Section V.B. of this Order.
- iv. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

- v. The Discharger shall comply with Section IX.A. Biosolids of the Monitoring and Reporting Program Attachment E.
- vi. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

b. Biosolids Storage and Transportation Specifications

- 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 USEPA 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.

c. 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.
- v. All biosolids shall be transported in covered vehicles capable of containing the designated load.
- vi. All biosolids having a water content that is capable of leaching liquids shall be transported in leak proof vehicles.
- vii. Each biosolids transport driver shall be trained as to the nature of its load and the proper response to accidents or spill events and shall carry a copy of an approved spill response plan.
- viii. The Discharger shall avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses

cannot be avoided, the Discharger shall limit project-related truck traffic to daylight hours.

- d. Collection System.** On 2 May 2006, the State Water Board adopted State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003 and any future revisions thereto. Order No. 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDRs. **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.**
- e.** 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 6 months of adoption of this permit. For systems installed following permit adoption, the notification system shall be installed simultaneously.

6. Other Special Provisions – Not Applicable

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

- A. BOD₅ and TSS Effluent Limitations (Section IV.A.1.b. and Table 6).** Compliance with the final effluent limitations for BOD₅ and TSS required in Limitations and Discharge Requirements Section **IV.A.1.b and Table 6.** shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements Section **IV.A.1.b.** for percent removal shall be calculated using the arithmetic mean of BOD₅ and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.
- B. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.e).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).
- C. Total Coliform Organisms Effluent Limitations (Section IV.A.1.Table 6.).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform

bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.

D. Total Residual Chlorine Effluent Limitations (Section IV.A.1.Table 6). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with Section IV Standard Provisions (Attachment D).

E. Annual Average Effluent Limitations. Annual average effluent constituent concentrations for determining compliance with the annual average effluent limitations for aluminum shall be performed as the average value of each averaging period required in the Monitoring and Reporting Program. For example, if quarterly effluent monitoring is required, the annual average is the average of the four quarterly averages. Each quarterly average is the average of the verified results during that calendar quarter.

F. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV). Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.

G. Mass Effluent Limitations. The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a and Interim Effluent Limitations IV.A.2. are based on the permitted average dry weather flow and calculated as follows:

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

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a. and Interim Effluent Limitations IV.A.2. shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

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

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

Average Monthly Effluent Limitation (AMEL)

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

Average Weekly Effluent Limitation (AWEL)

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

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of State Water Resources Control Board Resolution 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

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

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a

calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

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

Detected, but Not Quantified (DNQ)

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

Dilution Credit

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

Effluent Concentration Allowance (ECA)

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

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration

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

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams

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

Inland Surface Waters

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

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Maximum Daily Effluent Limitation (MDEL)

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

Median

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

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Attachment B, revised as of 3 July 1999.

Minimum Level (ML)

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

Mixing Zone

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

Not Detected (ND)

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

Ocean Waters

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

Persistent Pollutants

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

Pollutant Minimization Program (PMP)

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

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in 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 Central Valley Water Board.

Reporting Level (RL)

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

Satellite Collection System

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

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

Source of Drinking Water

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

Standard Deviation (σ)

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

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

where:

x is the observed value;

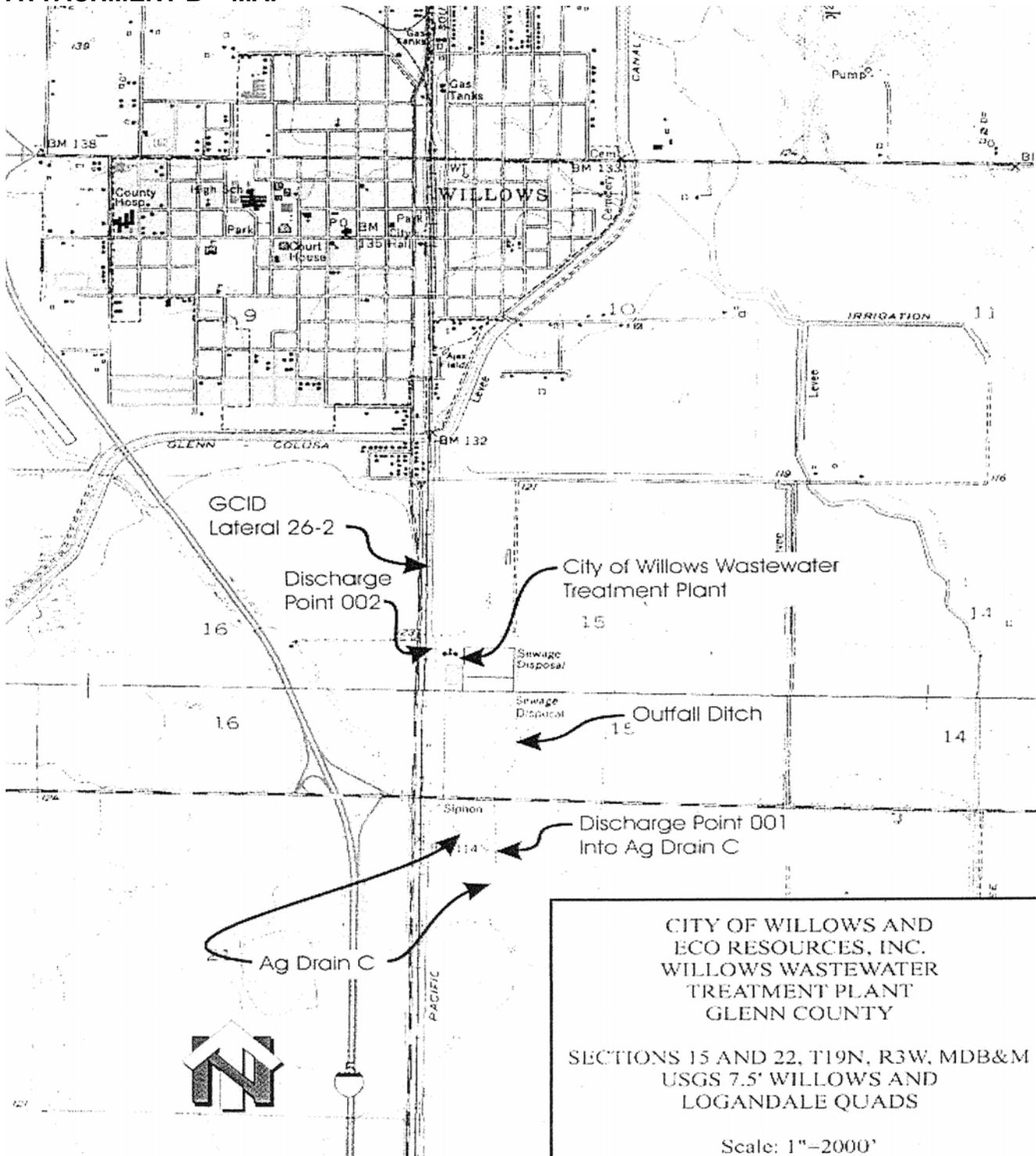
μ is the arithmetic mean of the observed values; and

n is the number of samples.

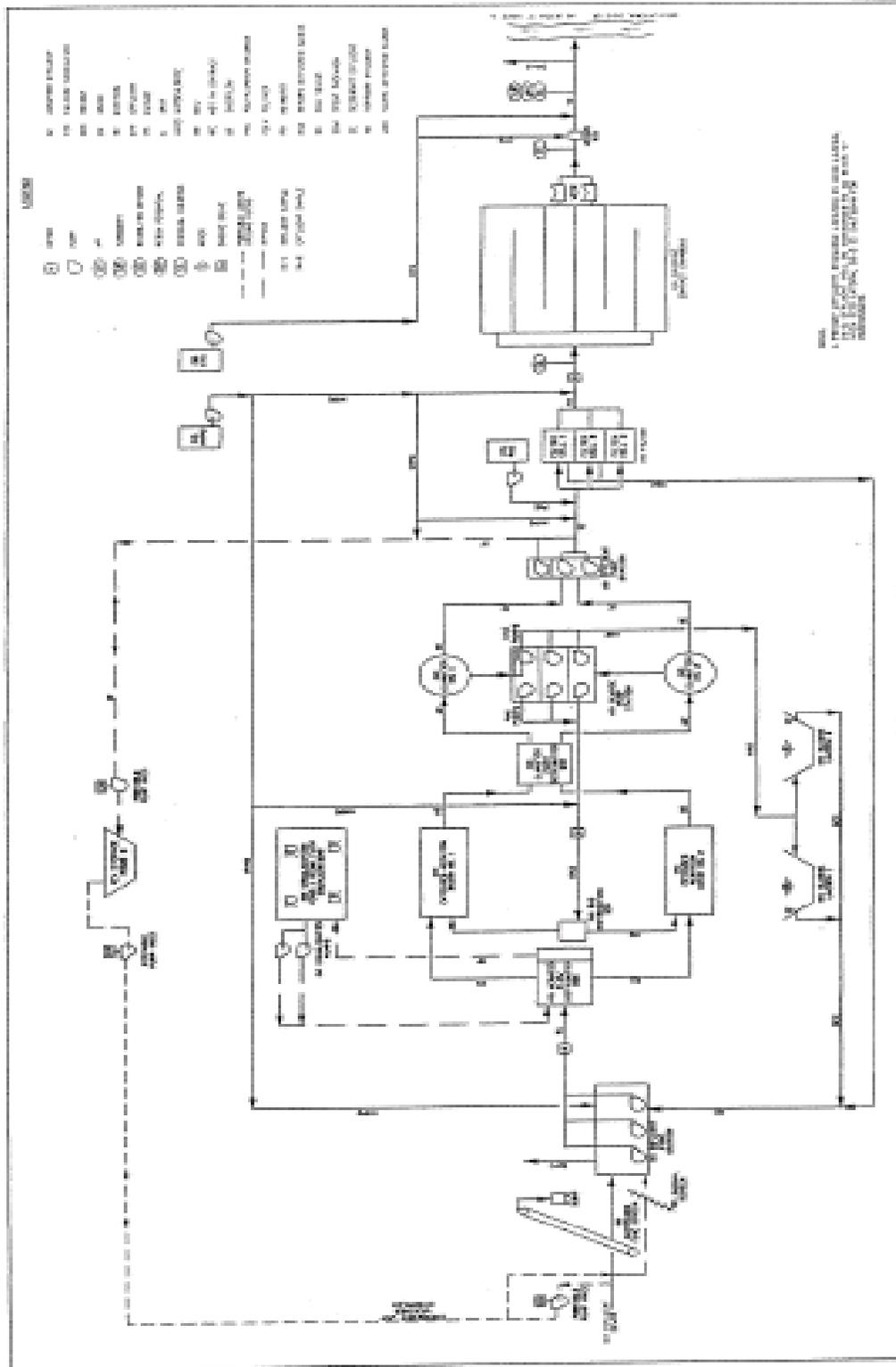
Toxicity Reduction Evaluation (TRE)

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

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



Kenney/Jervis Consultants
 CITY OF WILLOWS
 WASTEWATER TREATMENT PLANT
 OPERATION & MAINTENANCE MANUAL
 PLANT FLOW SCHEMATIC
 K01-040000-02
 FIGURE 11

ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); CWC section 13383):

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

G. Bypass

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

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

H. Upset

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

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

IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 CFR 122.41(j)(2).)

B. Records of monitoring information shall include:

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

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

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

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

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

Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c).)

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

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 CFR 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR 122.41(l)(4)(iii).)

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall

also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A).)
 - b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(B).)
3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii).)

F. Planned Changes

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

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

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

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

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), Section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) Sections 13267 and 13383 also authorize the Central Valley Water Quality Control Board (Central Valley Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the Federal and California Regulations.

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Central Valley Water Board.
- B.** Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH; formerly the Department of Health Services). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, Turbidity, temperature and Residual Chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, Turbidity, Temperature and Residual Chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E.** Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

- F. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of CWC Section 13176, and must include Quality Assurance/Quality Control (QA/QC) data with their reports.
- G. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
	INF-001	Point at which raw sewage enters the treatment plant
D-001 or D-002	EFF-001	Downstream of the last connection through which wastes can be admitted to the outfall
D-001	RSW-001	Upstream Receiving Water - 1,500 feet upstream from D-001 when discharging to Ag Drain C
D-001	RSW-002	Downstream Receiving Water - 100 feet downstream from D-001 when discharging to Ag Drain C
D-002	RSW-003	Upstream Receiving Water - 100 feet upstream from D-002 when discharging to GCID Lateral 26-2
D-002	RSW-004	Downstream Receiving Water - 100 feet downstream from D-002 when discharging to GCID Lateral 26-2
	SPL-001	Municipal Water Supply – A location where a representative sample location for the municipal water supply can be collected. If the water supply is from more than one source, a weighted average should be calculated.
	BIO-001	Biolsolids (sludge) monitoring location

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations INF-001,

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

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Daily Flow	Mgd	Meter	Continuous	
BOD, 5-day 20°C	Mg/L, lbs/day	24-hour Composite calculate	1/Month	1
Total Suspended Solids	Mg/L, lbs/day	24-hour Composite calculate	1/Month	1
pH	Standard Units	Grab	1/Week	
Hardness (as CaCO ₃)	Mg/L	24-hour composite calculate	1/Quarter	1

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

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated advanced secondary 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
Flow	mgd	Meter	Continuous	1
Conventional Pollutants				
Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	mg/L	24-hr Composite ⁸	1/Week	1
	lbs/day	Calculate	1/Week	1
pH	pH Units	Grab	1/Week	1,6
Total Suspended Solids	mg/L	24-hr Composite ⁸	1/Week	1
	lbs/day	Calculate	1/Week	1
Priority Pollutants				
Priority Pollutants	µg/L	Grab	1/Year	1,2,3,4
Dibromochloromethane	ug/L	Grab	1/Month	1, 2
Dichlorobromomethane	ug/L	Grab	1/Month	1, 2
Non-Conventional Pollutants				
Chlorine, Total Residual	mg/L	Meter	Continuous	1,5
Total Coliform Bacteria	MPN/100 ml	Grab	1/Week	1
Ammonia Nitrogen, Total (as N) ⁷	mg/L	Grab	1/Week	1,6,7
	lbs/day	Calculate	1/Week	
Nitrate (as N)	mg/L	Grab	1/Month	1
Electrical Conductivity @ 25°C	umhos/cm	Grab	1/Week	1
Temperature	°F	Grab	1/Week	1,6
Hardness	mg.L	Grab	1/Month	1,6
Standard Minerals ⁹	ug/L	Grab	1/Year	1
Turbidity	NTU	Grab	1/Day	1
Total Dissolved Solids	mg/L	Grab	1/Quarter	1
Acute Toxicity (see Section V. below)	% survival	Grab	1/Quarter	1
Chronic Toxicity (see Section V. below)	--	--	2/permit cycle	--

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the Priority Pollutants. See requirements below under Section "Priority Pollutant Monitoring".

² For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP. Sampling and analysis of Bis (2-ethylhexyl) phthalate shall be conducted using ultra-clean techniques that eliminate the possibility of sample contamination.

³ Volatile constituents shall be sampled in accordance with 40 CFR Part 136.

⁴ Concurrent with receiving surface water sampling.

⁵ Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of

0.01 mg/L (in accordance with Section VII.4. Compliance Determination of the Limitations and Discharge Requirements).

⁶ pH, hardness and temperature (and Priority Pollutants when sampled) shall be recorded at the time of ammonia sample collection.

⁷ Report as both total and un-ionized ammonia.

⁸ 24-hr composite.

⁹ Standard minerals shall include the following: aluminum, 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).

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 24-hour composites 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 three species chronic toxicity testing; one test shall be performed **within 365 days of permit adoption, and one test shall be performed no later than 365 days prior to permit expiration.**
2. Sample Types – Effluent samples shall be 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 or RSW-003 (dependent

on which Discharge Point is being used at the time of sample collection) sampling location, as identified in this Monitoring and Reporting Program.

3. **Sample Volumes** – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. **Test Species** – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
 - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
 - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
 - The green alga, *Selenastrum capricornutum* (growth test).
5. **Methods** – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002*.
6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. **Dilutions** – The chronic toxicity testing shall be performed using the dilution series identified in the table, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

Table E-4. Chronic Toxicity Testing Dilution Series

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

8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
 - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – Not Applicable

VII. RECLAMATION MONITORING REQUIREMENTS – Not Applicable

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001, RSW-002, RSW-003 and RSW-004

- 1. The Discharger shall monitor RSW-001 and RSW-002 when discharging to Ag Drain C or RSW-003 and RSW-004 when discharging to the GCID Lateral 26-2 as follows:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	pH Units	Grab	2/Month	1
EC	umhos/cm	Grab/Meter	2/Month	1
Dissolved Oxygen	mg/L	Grab	2/Month	1
Turbidity	NTU	Grab	2/Month	1
Temperature	°F	Grab	2/Month	1
Hardness	mg/L	Grab	1/Month	1
Nitrate		Grab	1/Month	1
Ammonia	mg/L	Grab	1/Month ²	1
Priority Pollutants	ug/L	Grab	1/Year ^{1,2}	1
Dichlorobromomethane	ug/L	Grab	1/Month	1
Chlorodibromomethane	ug/L	Grab	1/Month	1
Fecal Coliform Bacteria	MPN/100 mL	Grab	1/Quarter	1
Receiving Water Conditions	Safe/Unsafe		1/Month	

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Central Valley Water Board or the State Water Board.

² Concurrent with effluent priority pollutant sampling, including pH, temperature and hardness.

In conducting the receiving water sampling, a log shall be kept of the receiving water condition. Attention shall be given to the presence or absence of:

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

B. Monitoring Location MW-1, MW-2 and MW-3

1. The Discharger shall monitor groundwater at **MW-1, MW-2 and MW-3.**

The current groundwater monitoring network includes 3 monitoring wells. MW-1 is considered the upgradient (background) well. Prior to construction of any additional groundwater wells or the addition of surrounding groundwater wells to the current network, the Discharger shall submit plans and specification to the Central Valley Water Board for review and approval. Once installed and/or approved into the network, all new monitoring wells shall be added to the MRP, and shall be analyzed according to the schedule below.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Table E-6. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Groundwater Elevation	0.01 feet MSL	Measurement	Quarterly
Groundwater Gradient	feet/foot	Calculated	Quarterly
pH	pH Units	Grab	Quarterly
Electrical Conductivity	µmhos/cm	Grab	Quarterly
Nitrogen as Nitrate (N)	mg/L	Grab	Quarterly
Total Chemical Oxygen Demand (COD)	mg/L	Grab	Quarterly

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

- a. If offsite sludge disposal occurs within a given year, a composite sample of sludge shall be collected **annually** at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).

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

B. Municipal Water Supply

1. Monitoring Location SPL-001

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

Table E-7. Municipal Water Supply Monitoring Requirements

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

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

² 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 Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State Water Board or the Central Valley Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this Monitoring and Reporting Program under Sections III through IX. The Discharger shall submit **monthly** SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	First day of calendar month through last day of calendar month	1st day of the second month following the reporting period
1/Quarter	Permit effective date	1 January through 1 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1st day of the second month following the reporting period
1/Year	Permit effective date	1 January through 31 December	1st day of the second month following the reporting period

4. Reporting Protocols. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

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

- a. Sample results greater than or equal to the reported ML 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 (+ 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. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
6. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
7. The Discharger shall submit SMRs in accordance with the following requirements:
 - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

- c. SMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

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

- 8. Reports must clearly show when discharging to D-001 or D-002 or other permitted discharge locations. Reports must show the date and time that the discharge started and stopped at each location.

C. Discharge Monitoring Reports (DMRs)

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

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 th Floor Sacramento, CA 95814

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

D. Other Reports

- 1. **Progress Reports.** As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of 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-9. Reporting Requirements for Special Provisions Progress Reports,

Special Provision	Reporting Requirements
Constituent Study for Bromodichloromethane, Dichlorobromomethane and Nitrate	30 January , annually, until final compliance
BPTC Evaluation Tasks	30 January , annually, until final compliance
Salinity Evaluation and Minimization Study	30 January , until final compliance
Initial Investigation TRE Workplan	Within 90 days from the effective date of this Order

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, required by this Order. The Discharger shall report the progress in satisfaction of compliance schedule dates specified in the Special Provision at section VI.C.7 of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.
3. **Within 60 days** of permit adoption, the Discharger shall submit a report outlining 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 SIP.
4. **Annual Operations Report. By 30 January of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:
 - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
 - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
 - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
 - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
 - e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the

report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in the Findings in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

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

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5A110101001
Discharger	City of Willows
Name of Facility	Willows Wastewater Treatment Plant
Facility Address	1600 Tehama Street
	Willows, CA 95988
	Glenn County
Facility Contact, Title and Phone	Greg Tyhurst, City of Willows Public Works Director, (530) 934-7041
Authorized Person to Sign and Submit Reports	Greg Tyhurst, Kathy Stone, John Dobson, Skyler Lipski, Brian Davis, SouthWest Water Company, 530-934-2052
Mailing Address	201 N. Lassen Street Willows, CA 95988
Billing Address	201 N. Lassen Street Willows, CA 95988
Type of Facility	Publicly Owned Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	NA
Reclamation Requirements	NA
Facility Permitted Flow	1.2 million gallons per day (mgd)
Facility Design Flow	1.2 mgd
Watershed	Colusa Basin Drain
Receiving Water	Glenn Colusa Irrigation District
Receiving Water Type	Canal

- A. The City of Willows (hereinafter Discharger) is the owner of Willows Wastewater Treatment Plant (hereinafter Facility), a Publicly Owned Treatment Works (POTW). SouthWest Water Company (contract operator) currently operates the Facility for the City of Willows.

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 the Glenn-Colusa Irrigation District, a water of the United States, and is currently regulated by Order No. R5-2006-0009 which was adopted on 26 January 2006 and expired on 1 January 2011. The two discharge points (D-001 – Agricultural Drain C and D-002 – GCID Lateral 26-2) are the permitted discharge points, which are part of the Glenn-Colusa Irrigation District. The terms and conditions of Order No. R5-2006-0009 have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.
- C.** The Discharger filed a report of waste discharge (ROWD) and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 1 July 2010. Supplemental information was requested on 12 July 2010 and received on 19 July 2010. The Central Valley Water Board deemed the ROWD complete on 27 July 2010.

II. FACILITY DESCRIPTION

The Discharger owns and operates a POTW which provides wastewater collection, treatment, and disposal sewerage services for the community of Willows and the Northeast Willows Community Service District. The facility serves approximately 6,200 residences and small commercial customers. The design average dry weather flow capacity of the Facility is 1.2 million gallons per day (MGD).

Time Schedule Order No. R5-2011-XXXX includes interim effluent limits for dibromochloromethane, dichlorobromomethane and nitrate to meet the effluent limitations of this Order by **1 May 2016**.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility consists of a headworks with influent screening; extended aeration activated sludge with secondary clarifiers with skimmers, continuous backwash sand filters, chlorine disinfection with sodium hypochlorite, dechlorination using sodium bisulfite injection, equalization and emergency storage ponds, and two 3.75 MG sludge storage lagoons. The current design flow of the facility is 1.2 mgd.

Prior to 2006, the treatment system consisted of a comminutor, primary aeration ponds, stabilization ponds and disinfection.

B. Discharge Points and Receiving Waters

- 1.** The Facility is located in Sections 15 and 22, Township 19 North, Range 3 West of the Mt. Diablo Base Line and Meridian, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. D-001 Agricultural Drain C, a tributary to Logan Creek, a water of the United States and tributary to the Colusa Basin Drain within the Colusa Trough Hydrologic Sub Area (520.21) of the Glenn Colusa Hydrologic Area in the Colusa Basin Hydrologic Unit at a point latitude 39° 29' 34" N and longitude 122° 11' 16" W, which is a tributary to the Sacramento River.
3. As an alternate, treated municipal wastewater is discharged at Discharge Point No. D-002 to Glenn-Colusa Irrigation District (GCID) Lateral 26-2, a tributary to Logan Creek, a water of the United States and tributary to the Colusa Basin Drain within the Colusa Trough Hydrologic Sub Area (520.21) of the Glenn Colusa Hydrologic Area in the Colusa Basin Hydrologic Unit at a point latitude 39° 30' 08" N and longitude 122° 11' 28" W, which is a tributary to the Sacramento River.

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

Effluent limitations and discharge specifications contained in Order No. R5-2006-0009 for discharges from Discharge Point No. 001 (Agricultural Drain C) and Discharge Point No. 002 (Monitoring Location GCID Lateral 26-2) and representative monitoring data from the term of Order No. R5-2006-0009 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From June 2007 To May 2010 ^h)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD ₅ ^a	mg/L	10 ^b	15 ^b	30 ^b	5.48	--	27.0
	lbs/day ^c	100	150	300	36.72	--	161.46
Total Suspended Solids	mg/L	10 ^b	15 ^b	30 ^b	1.5	--	4.0
	lbs/day ^c	100	150	300	10.1	--	26.7
Chlorine	mg/L		0.01(4-day avg)	0.02 ^d	0.01	--	1.65
Total Coliform Bacteria	MPN/100 mL		2.2 (7-day median)	23		2.27	11
Ammonia ^f	mg/L	1.1		2.1		0.21	1.05
	lbs/day ^c	11		21		--	--
Ammonia ^g	mg/L	1.9		3.8		0.23	1.02
	lbs/day ^c	19		38		--	--
Turbidity	NTU			5 ^e	0.51	0.99	1.90

Parameter	Units	Effluent Limitation			Monitoring Data (From June 2007 To May 2010 ^h)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
^a Five-day biochemical oxygen demand at 20° C ^b To be ascertained by a 24-hour composite ^c Based upon a design treatment capacity of 1.2 mgd ^d 1-hour average ^e The daily maximum limit is 5 NTU, the daily average shall not exceed 2 NTU ^f For the period of May 1 through October 31 ^g For the period of November 1 through April 30 ^h Monitoring Data was selected for the specific period due to the current WWTP began operational in March 2007 (waste activated sludge plant). There was a 90-day startup period; therefore data was used from June 2007 to May 2010. Prior to March 2007, the WWTP only consisted of a “pond” system.							

D. Compliance Summary

An Administrative Civil Liability Complaint/Order was issued to the City of Willows and ECO Resources, Inc. for the sum of \$216,000 for effluent violations, from January 2004 through December 2007. The effluent violations included exceedances of total residual chlorine, total coliform, BOD, and ammonia. A majority of the violations occurred when two of the treatment ponds were removed from the treatment system during the upgrades to the WWTP. Since the initial startup of the new WWTP (March – May 2007), there have only been two BOD violations occurring at the Facility.

E. Planned Changes

This permit contains newly applicable effluent limits for nitrate, dibromochloromethane, chlorodibromomethane, and electrical conductivity. The Discharger is evaluating potential alternatives for maintaining compliance with this permit. Some options may require facility upgrades. Such changes are unknown at this time and are not addressed by this permit.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

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

B. California Environmental Quality Act (CEQA)

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

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** This Order implements the following water quality control plans as specified in the Finding contained at Section II.H of this Order.
 - a. ***Water Quality Control Plan, Fourth Edition (Revised February 2007), for the Sacramento and San Joaquin River Basins*** (Basin Plan)
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at Section II.I of this Order.
3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at Section II.I of this Order.
4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at Section II.L of this Order.
5. **Antidegradation Policy.** As specified in the Finding contained at Section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR Section 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.
6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at Section II.M of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).
7. **Emergency Planning and Community Right to Know Act**

Section 13263.6(a) of the 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 Central Valley Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”*.

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a

reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to California Water Code Section 13263.6(a).

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

8. Storm Water Requirements

USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from **wastewater treatment facilities**. **Wastewater treatment** facilities are applicable industries under the storm water program and are obligated to comply with the Federal Regulations. The Facility submitted its NOI to be covered under the General Industrial Storm Water Permit on **11 March 1992**.

9. **Endangered Species Act.** This Order is consistent with the Endangered Species Act as specified in the Finding contained at Section II.P of this Order.

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

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR Part 130, et seq.)." The Basin Plan also states, "Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment." The listing for the Colusa Basin Drain includes: azinphos-methyl, carbofuran, diazinon, Group A Pesticides, malathion, methyl parathion, molinate/ordram and unknown toxicity.
2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. TMDLs have been proposed for the Colusa Basin Drain. It is anticipated that the TMDLs will be completed by 2019.

3. The 303(d) listings and TMDLs have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in Section VI.C.3. of this Fact Sheet.

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.

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 and amendments thereto are applicable to the discharge.

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

The Clean Water Act requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and

40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, "*Policy for Application of Water Quality Objectives*", that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*" This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "*Policy for Application of Water Quality Objectives*" (40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

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

A. Discharge Prohibitions

- 1. Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on CWC Section 13260 that requires filing a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
- 2. Prohibition III.D (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41 (m)(4)).** As stated in Section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Central Valley Water Board's prohibition of bypasses,

the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.E (No controllable condition shall create a nuisance).** This prohibition is based on CWC Section 13050 that requires water quality objectives established for the prevention of nuisance within a specified area. The Basin Plan prohibits conditions that create a nuisance.

B. Technology-Based Effluent Limitations

1. Scope and Authority

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

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

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

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations.

- a. **BOD₅ and TSS.** Federal Regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD₅ and TSS. Advanced secondary-level treatment is necessary to protect the beneficial uses of the receiving stream and minimize degradation. Therefore, the final effluent limitations for BOD₅ and TSS are based on the technical capability of the advanced secondary processes. BOD₅ is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The secondary treatment standards for BOD₅ and TSS are indicators of the effectiveness of the treatment processes. The principal design parameter for wastewater treatment plants is the daily BOD₅ and TSS loading rates and the

corresponding removal rate of the system. In applying 40 CFR Part 133 for weekly and monthly average BOD₅ and TSS limitations, the application of advanced secondary treatment processes results in the ability to achieve lower levels for BOD₅ and TSS than the secondary standards currently prescribed; therefore, consistent with Order No. R5-2006-0009, this Order includes 30-day average BOD₅ and TSS limitations of 10 mg/L, which are technically based on the capability of an advanced secondary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD₅ and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. See Table F-4 for final technology-based effluent limitations required by this Order. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD₅ and TSS must be achieved by a secondary treatment plant, it must also be achieved by an advanced secondary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD₅ and TSS over each calendar month.

- b. Flow.** The Facility was designed to provide advanced secondary level of treatment for up to a design flow of 1.2 mgd. Therefore, this Order contains an average dry weather discharge flow effluent limit of 1.2 mgd.

Table F-3. Summary of Technology-based Effluent Limitations, Discharge Point No. D-001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L ^a	10	15	30		
	lbs/day ^b	100	150	300		
Total Suspended Solids	mg/L ^a	10	15	30		
	lbs/day ^b	100	150	300		
Average Dry Weather Flow	mgd	1.2				
^a To be ascertained by a 24-hour composite ^b Based upon a design treatment capacity of 1.2 mgd						

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

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

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

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

The Federal CWA Section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and 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 Central Valley Water Board considered the factors listed in CWC section 13241 at the time of adoption of the previous Order No. R5-2006-0009 which initially established secondary level effluent limitations for protection of beneficial uses of the receiving water. The previous permit, however, did not recognize the MUN beneficial use to the receiving water. Although the receiving waters consist of modified agricultural drains 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 Central Valley Water Board and approved by the State Water Board and Office of Administrative Law. Therefore, this Order contains new effluent limitations necessary to protect the municipal and domestic supply use of the receiving waters

- a. **Receiving Water and Beneficial Uses. Colusa Basin Drain.** The receiving water is currently the GCID Lateral 26-2 and Agricultural Drain C, via Logan Creek, which is tributary to Colusa Basin Drain, which are waters of the United States. The flows in the GCID Lateral 26-2 and Agricultural Drain C are not continuous during the year, only when there is agricultural runoff or stormwater flow.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for GCID Lateral 26-2 and Agricultural Drain C, but does identify present and potential uses for the Colusa Basin Drain, to which these waters are tributary. Thus, beneficial uses applicable to GCID Lateral 26-2 and Agricultural Drain C are as follows

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
D-001 and D-002	Colusa Basin Drain	<p>Existing: Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); water contact recreation, including canoeing and rafting (REC-1); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); and wildlife habitat (WILD).</p> <p>Intermittent: Ground water recharge (GWR), freshwater replenishment (FRSH).</p>

b. Effluent and Ambient Background Data. The reasonable potential analysis (RPA), as described in Section IV.C.3 of this Fact Sheet, was based on data from February 2006 through May 2010, which includes effluent and ambient background data submitted in SMRs and the Report of Waste Discharge (ROWD).

c. Priority Pollutant Metals

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

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP¹, the CTR² and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term “ambient,” as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

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

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

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

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

- For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case downstream hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore, for this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii, below.
 - For comparing the Maximum Ambient Background Concentration to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case upstream hardness was used to adjust the criterion. In this evaluation the area outside the influence of the discharge is analyzed. For this situation, the discharge does not impact the upstream hardness. Therefore, the effect of the effluent hardness was not included in this evaluation.
- a) **Discharge Point No. EFF-001 (Colusa Basin Drain).** The upstream receiving water (RSW-003) hardness varied from 43 mg/L to 55 mg/L (as CaCO₃), based on 11 samples from April 2007 to June 2009. The minimum upstream receiving water hardness of 43 mg/L (as CaCO₃) represents the reasonable worst-case upstream hardness and was used to adjust the criterion when comparing the Maximum Background Ambient Concentration to the criterion for the discharge to the Colusa Basin Drain at Discharge Point No. EFF-001. For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case downstream hardness was used to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii below.

ii. Effluent Concentration Allowance (ECA) Calculations. A 2006 Study¹ developed procedures for calculating the effluent concentration allowance

¹ Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

(ECA)¹ for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g. high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. Simply using the lowest recorded upstream receiving water hardness to calculate the ECA may result in over or under protective WQBELs.

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

$$\text{ECA} = C + D(C - B); \text{ when } C > B \quad (\text{Equation 1})$$

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

Where:

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

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as “Concave Down Metals”. “Concave Down” refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 3. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as “Concave Up Metals”.

Concave Down Metals – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria. Therefore, based on any observed ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion) and the minimum effluent hardness, the ECA calculated using Equation 1 with a hardness equivalent to the minimum effluent hardness is protective under all discharge conditions (i.e., high and low dilution conditions and under all mixtures of

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

² The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. $C \leq B$)

effluent and receiving water as the effluent mixes with the receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

The following equation provides fully protective water quality criteria for those metals that exhibit a concave down relationship:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \quad (\text{Equation 3})$$

Where:

H = hardness (as CaCO₃)

WER = water-effect ratio

m, b = metal- and criterion-specific constants

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

The effluent hardness ranged from 162 mg/L to 208 mg/L (as CaCO₃), based on 13 samples from April 2007 to June 2009. The upstream receiving water hardness in the Colusa Basin Drain varied from 43 mg/L to 55 mg/L (as CaCO₃), based on 11 samples from April 2007 to June 2009. Using a hardness of 43 mg/L (as CaCO₃) to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, assuming the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness;
- Upstream receiving water concentration always at the CTR criteria (i.e., no assimilative capacity)

An ECA based on a lower hardness (e.g., lowest upstream receiving water hardness) would also be protective, but would result in unreasonably stringent effluent limits considering the known conditions. Therefore, in this Order the ECA for all Concave Down Metals has been calculated using Equation 2 with a hardness of 43 mg/L (as CaCO₃). Based on the RPA analysis, there is no reasonable potential for these “concave down metals” to cause, or contribute to an excursion above any applicable priority pollutant criterion or objective.

Concave Up Metals – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the 2006 Study demonstrates that the Design Hardness must not exceed the lowest recorded effluent hardness in order to adequately

protective. However, for these metals the Design Hardness is not readily apparent, due to a different relationship between hardness and the metals criteria. Based on the 2006 Study, the following equation is used to determine the appropriate Design Hardness to calculate effluent limits that are protective under all discharge conditions. The following equation provides fully protective water quality criteria for those metals that exhibit a concave upward relationship

$$C = \left[\frac{m}{H_{rw}} \cdot (H_{eff} - H_{rw}) + 1 \right] \cdot e^{m \cdot \ln(H_{rw}) + b} \quad \text{(Equation 4)}$$

Where:

C = regulatory criterion

H_{eff} = minimum observed effluent hardness

H_{rw} = minimum observed upstream receiving water hardness (when $H_{rw} < H_{eff}$)

b = metal- and criterion-specific constant

m = metal- and criterion-specific constant

Based on the RPA analysis, there is no reasonable potential for these “concave up metals” to cause, or contribute to an excursion above any applicable priority pollutant criterion or objective.

d. Human Health Criteria and Other Long-term Criteria

Effluent concentration allowances based on human health criteria are calculated similarly as described above, using the following equation.

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

Where:

ECA_{HH} = effluent concentration allowance for human health criterion

HH = human health criteria/objective

D = dilution credit

B = maximum observed receiving water concentration

For other long-term criteria, the effluent concentration allowances are set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC$$

$$ECA_{chronic} = CCC$$

e. Effluent Limitation Calculations

In calculating maximum effluent limitations, ECAs are converted to equivalent long term averages using statistical multipliers and the lowest is used. Additional statistical multipliers are then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Acute and chronic toxicity ECAs are converted to equivalent MDEL and AMEL using the following equations.

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

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

where:

$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL

M_A = statistical multiplier converting acute ECA to LTA_{acute}

M_C = statistical multiplier converting chronic ECA to $LTA_{chronic}$

WQBELs based on human health and other long-term criteria, are also calculated in accordance with Section 1.4 of the SIP. For human health criteria, the ECA is set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL_{HH} = ECA_{HH}$$

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

f. Assimilative Capacity/Mixing Zone

USEPA established numeric criteria for priority toxic pollutants in the California Toxics Rule (CTR). The State Water Resources Control Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) to implement the CTR. The Central Valley Water Board’s Basin Plan allows mixing zones provided the Discharger has demonstrated that the mixing zone will not adversely impact beneficial uses. The Basin Plan further requires that in determining the size of a mixing zone, the Central Valley Water Board will consider the applicable procedures in USEPA’s Water Quality Standards Handbook and the Technical Support Document for Water Quality Based Toxics Control (TSD). It is the Central Valley Water Board’s discretion whether to allow a mixing zone. The SIP, in part, states that mixing zones shall not:

- Compromise the integrity of the entire water body;

- Cause acutely toxic conditions to aquatic life passing through the mixing zone;
- Restrict passage of aquatic life;
- Adversely impact biologically sensitive or critical habitats, including but not limited to, habitat of species listed under Federal or State endangered species laws;
- Produce undesirable or nuisance aquatic life;
- Result in floating debris, oil, or scum;
- Produce objectionable color, odor, taste, or turbidity;
- Cause objectionable bottom deposits;
- Cause nuisance;
- Be allowed at or near any drinking water intake;
- Dominate the receiving water body; and,
- Overlap a mixing zone from a different outfall.

USEPA's Water Quality Standards Handbook (WQSH) states that States may, at their discretion, allow mixing zones. The WQSH recommends that mixing zones be defined on a case-by-case basis after it has been determined that the assimilative capacity of the receiving stream can safely accommodate the discharge. This assessment should take into consideration the physical, chemical, and biological characteristics of the discharge and the receiving stream; the life history of and behavior of organisms in the receiving stream; and the desired uses of the waters. Mixing zones should not be allowed where they may endanger critical areas (e.g., drinking water supplies, recreational areas, breeding grounds and areas with sensitive biota). USEPA's TSD states, in part in Section 4.3.1, that mixing zones should not be permitted where they may endanger critical areas.

The Basin Plan, the SIP and USEPA's TSD state that allowance of a mixing zone is discretionary on the part of the Central Valley Water Board. Mixing zones will be limited to the amount of assimilative capacity necessary to comply with discharge limitations. Based on the available information, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero dilution/assimilative capacity within the receiving water is that the discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water. This permit contains a reopener to establish dilution credits and mixing zone if the Discharger conducts the necessary studies and makes any necessary physical improvements, and the Central Valley Water Board decides to grant dilution credits and mixing zones. The Discharger has not requested a mixing zone for this discharge.

3. Determining the Need for WQBELs

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

may use the SIP as guidance for water quality-based toxics control.¹ 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 based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

- b. Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.
- c. Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, dichlorobromomethane, dibromochloromethane and nitrate. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

- i. Ammonia**

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

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

¹ See Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

2.14 mg/L. However, using site specific temperature and pH, the resulting acute/30-day chronic criteria during the dry season (May – October) is 5.403 / 1.075 mg/L for Agricultural Drain C and 1.945 / 0.523 mg/L for the GCID Lateral 26-2. During the wet season (November – April), the acute/30-day chronic criteria is 6.070 / 1.184 for Agricultural Drain C and 2.968 / 0.641 mg/L for the GCID Lateral 26-2.

- (b) RPA Results.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger **does** currently use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. The maximum effluent concentration (MEC) for ammonia was 1.05 mg/L, while the maximum observed upstream receiving water concentration was 0.12 mg/L. Because domestic wastewater contains ammonia and the MEC for ammonia exceeds the NAWQC, ammonia in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.
- (c) WQBELs.** The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for **ammonia** as shown in Tables F-6 through F-9 of this Fact Sheet for the discharges to the GCID Lateral 26-2 canal and the AG Drain C canal. Tables F-6 through F-9 are based on temperature and pH sample results collected during the wet and dry seasons at each discharge point (Ag Drain C canal and GCID Lateral 26-2 canal). Effluent limitations for ammonia were based on maximum temperature and pH sample results in both of the two receiving waterbodies (GCID and AG Drain C). There were considerable

differences between the dry and wet seasons at the two receiving waterbodies.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 1.05 mg/L is greater than the applicable WQBELs, however the average MEC values are 0.78 mg/L. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. Chlorine Residual

(a) WQO. USEPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.01 mg/L and 0.02 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective.

(b) RPA Results. The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses a sodium bisulfite process to dechlorinate the effluent prior to discharge to **Colusa Basin Drain**. 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 NAWQC.

(c) WQBELs. The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-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 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.01 mg/L and 0.02 mg/L, respectively, based on USEPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that immediate compliance with these effluent limitations is feasible.

iii. Pathogens

The Central Valley Water Board, when developing NPDES permits, implements recommendations by DPH for the appropriate disinfection requirements for the protection of MUN, REC-1 and AGR. The disinfection requirements in the proposed Order implement the DPH

recommendations and are fully protective of the beneficial uses of the receiving water.

- (a) **WQO.** 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 Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the Department of Public Health’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

- (b) **RPA Results.** The beneficial uses being applied to the Colusa Basin Drain include **municipal and domestic supply, water contact recreation, and agricultural irrigation supply**, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.
- (c) **WQBELs.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median and 23 MPN/100 mL (daily max), which are the existing effluent limits. Title 22 requires that the Order include effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum. Since the existing effluent limitations are more stringent than the Title 22 requirements, the existing limits will be retained. The Discharger has

been able to meet the existing limits, and future compliance with these stricter limits is expected.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the immediate compliance with these effluent limitations is feasible.

iv. pH

(a) WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "...pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses." Due to periods of no flow in the receiving water and at a minimum, instantaneous minimum and maximum effluent limits of 6.5 and 8.5, respectively, are necessary to comply with the Basin Plan objectives for pH.

(b) RPA Results. The Discharger monitored weekly pH levels in the effluent. Based on 33 pH samples taken from June 2007 through May 2010, the pH level averaged 7.45, with the maximum weekly level at 8.01 and a minimum weekly level at 6.95. The 30-day average maximum pH was 7.45. The discharge has a reasonable potential to cause or contribute to an excursion above the effluent limit for pH.

(c) WQBELs. Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the immediate compliance with these effluent limitations is feasible.

v. Salinity

(a) WQO. There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity, total dissolved solids, sulfate, and chloride. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for electrical conductivity, total dissolved solids, sulfate, and chloride.

Table F-5. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal ¹	Secondary MCL ³	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies ²	900, 1600, 2200	790	1,144
TDS (mg/L)	Varies	500, 1000, 1500	544	688
Sulfate (mg/L)	Varies	250, 500, 600	n/a	n/a

Chloride (mg/L)	Varies	250, 500, 600	n/a	n/a
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- ¹ 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)
- ² The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 µmhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.
- ³ The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

(1) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts. The Basin Plan does not contain a specific EC water quality objective for the Colusa Basin Drain.

(2) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The 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 Basin Plan does not contain a specific TDS water quality objective for the Sacramento River.

(b) RPA Results.

(1) Electrical Conductivity. A review of the Discharger's monitoring reports shows an average effluent EC of 790 $\mu\text{mhos/cm}$, with a range from 572 $\mu\text{mhos/cm}$ to 1,144 $\mu\text{mhos/cm}$. The background receiving water EC for the Colusa Basin Drain averaged 657 $\mu\text{mhos/cm}$, with a maximum of 2,610 $\mu\text{mhos/cm}$.

(2) Total Dissolved Solids. The average TDS effluent concentration was 544 mg/L with concentrations ranging from 470 mg/L to 688 mg/L.

(c) WQBELs. To protect the receiving water from further salinity degradation, this Order includes a performance-based annual average effluent limitation of 845 $\mu\text{mhos/cm}$ for EC. This interim performance-based effluent limitation is derived using the 99.9 percentile of the rolling 12-month average effluent concentration from January 2006 through March 2011.

This Order also requires the Discharger to implement pollution prevention measures to reduce the salinity in its discharge to the receiving water. Specifically this Order requires the Discharger to prepare and implement a salinity evaluation and minimization plan in accordance with CWC section 13263.3(d)(3), and to report on progress in reducing salinity discharges to the receiving water. Implementation measures to reduce salt loading may include source control, mineralization reduction, chemical addition reductions, changing to water supplies with lower salinity, and limiting the salt load from domestic and industrial dischargers. Also water supply monitoring is required to evaluate the relative contribution of salt from the source water to the effluent.

(d) Plant Performance and Attainability. The existing plant's discharge has caused an exceedance of the Water Quality objective for EC for the agricultural water quality goal, and therefore there are salinity limitations in this Order

vi. Nitrate

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

USEPA has developed a primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water

Standards (10 mg/L as primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

- (b) RPA Results.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Primary MCLs for nitrite and nitrate.
- (c) WQBELs.** This Order contains a final average monthly effluent limitation (AMEL) for nitrate of 10 mg/L, based on the protection of the Basin Plan's narrative chemical constituents' objective and to assure the treatment process adequately nitrifies and denitrifies the waste stream.
- (d) Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC for nitrate (as N) of 15.7 mg/L is greater than the WQBELs, and therefore, the Discharger appears to be in immediate non-compliance with nitrate final effluent limitations. The Facility includes nitrification, but does not include denitrification. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a time schedule for compliance with the effluent limit is established in Time Schedule Order No. R5-2011-XXXX (TSO) in accordance with CWC section 13301. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

vii. Dibromochloromethane

- (a) WQO.** The CTR includes a criterion of 0.41 µg/L for dibromochloromethane for the protection of human health for waters from which both water and organisms are consumed.
- (b) RPA Results.** CTR monitoring was performed from January 2006 through May 2010. The MEC for dibromochloromethane was 5.3 µg/L. Therefore, dibromochloromethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBELs.** This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for dibromochloromethane of 0.41 µg/L and 0.82 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent monitoring samples shows an MEC of 5.3 µg/L, and therefore, the Discharger appears to be in immediate non-compliance with dibromochloromethane final effluent limitations. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a time schedule for compliance with the effluent limit is established in TSO Order No. R5-2011-XXXX in accordance with CWC section 13301. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. The Discharger will have to implement improvements to the Facility in order to meet the final effluent limitations.

viii. Dichlorobromomethane

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

(b) **RPA Results.** CTR monitoring was performed monthly from January 2006 through May 2010. The MEC for dichlorobromomethane was 20.2 µg/L. Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) **WQBELs.** This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for dichlorobromomethane of 0.56 µg/L and 1.13 µg/L, respectively, based on the CTR criterion for the protection of human health.

(d) **Plant Performance and Attainability.** Analysis of the effluent monitoring samples shows an MEC of 20.2 µg/L; therefore, the Discharger appears to be in immediate non-compliance with dichlorobromomethane final effluent limitations. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Therefore, a time schedule for compliance with the effluent limit is established in TSO R5-2011-XXXX in accordance with CWC section 13301. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. The Discharger will have to implement improvements to the Facility in order to meet the final effluent limitations.

4. WQBEL Calculations

- a. This Order includes WQBELs for ammonia, EC, dibromochloromethane, dichlorobromomethane, nitrate, pH, and total coliform. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See **Attachment H** for the WQBEL calculations.
- b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

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

$$ECA = C \quad \text{where } C \leq B$$

where:

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

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

- c. **Basin Plan Objectives and MCLs.** For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.
- d. **Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. **Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

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

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

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

where:

*mult*AMEL = statistical multiplier converting minimum LTA to AMEL

*mult*MDEL = statistical multiplier converting minimum LTA to MDEL

MA = statistical multiplier converting acute ECA to LTA_{acute}

MC = statistical multiplier converting chronic ECA to LTA_{chronic}

Table F-6. QWBEL Calculations For Ammonia – Ag Drain C – May – October³

	Acute	Chronic 4-day	Chronic 30-day
Criteria (m/L) ¹	5.403	2.689	1.075
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	5.403	2.689	1.075
ECA Multiplier	0.321	0.527	0.78
LTA	1.73	2.10	0.57
AMEL Multiplier (95 th %)	2	2	1.55
AMEL (mg/L)	2	2	1.30
MDEL Multiplier (99 th %)	2	2	3.11
MDEL (mg/L)	2	2	2.61

¹ USEPA Ambient Water Quality Criteria

² Limitations based on chronic LTA (Chronic LTA < Acute LTA)

³ Based on temperature of 21.7 degrees C and pH of 8.23

Table F-7. QWBEL Calculations For Ammonia – GCID Lateral 26-2 – May - October³

	Acute	Chronic 4-day	Chronic 30-day
Criteria (mg/L) ¹	1.945	1.308	0.523
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	1.945	1.308	0.523
ECA Multiplier	0.321	0.527	0.78
LTA	0.62	1.02	0.28
AMEL Multiplier (95 th %)	2	2	1.55
AMEL (mg/L)	2	2	0.63
MDEL Multiplier (99 th %)	2	2	3.11
MDEL (mg/L)	2	2	1.27

¹ USEPA Ambient Water Quality Criteria

² Limitations based on chronic LTA (Chronic LTA < Acute LTA)

³ Based on temperature of 18.9 degrees C and pH of 8.77

Table F-8. WQBEL Calculations For Ammonia – Ag Drain C – November - April³

	Acute	Chronic 4-day	Chronic 30-day
Criteria (mg/L) ¹	6.070	2.959	1.184
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	6.070	2.959	1.184
ECA Multiplier	0.321	0.527	0.78
LTA	1.95	2.31	0.62
AMEL Multiplier (95 th %)	2	2	1.55
AMEL (mg/L)	2	2	1.43
MDEL Multiplier (99 th %)	2	2	3.11
MDEL (mg/L)	2	2	2.87

¹ USEPA Ambient Water Quality Criteria
² Limitations based on chronic LTA (Chronic LTA < Acute LTA)
³ Based on temperature of 15.15 degrees C and pH of 8.17

Table F-9. WQBEL Calculations For Ammonia – GCID Lateral 26-2 – November - April³

	Acute	Chronic 4-day	Chronic 30-day
Criteria (mg/L) ¹	2.968	1.602	0.641
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	2.968	1.602	0.641
ECA Multiplier	0.321	0.527	0.78
LTA	0.95	1.25	0.34
AMEL Multiplier (95 th %)	2	2	1.55
AMEL (mg/L)	2	2	0.77
MDEL Multiplier (99 th %)	2	2	3.11
MDEL (mg/L)	2	2	1.55

¹ USEPA Ambient Water Quality Criteria
² Limitations based on chronic LTA (Chronic LTA < Acute LTA)
³ Based on temperature of 16.2 degrees C and pH of 8.54

Table F-10. WQBEL Calculations For Dibromochloromethane

	Human Health
Criteria (ug/L)	0.41
Dilution Credit	No Dilution
ECA	0.41
AMEL (ug/L)⁽¹⁾	0.41
MDEL/AMEL Multiplier ⁽²⁾	2.01
MDEL (ug/L)	0.82

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

Table F-11. WQBEL Calculations For Dichlorobromomethane

	Human Health
Criteria (ug/L)	0.56
Dilution Credit	No Dilution
ECA	0.56
AMEL (ug/L) ⁽¹⁾	0.56
MDEL/AMEL Multiplier ⁽²⁾	2.01
MDEL (ug/L)	1.13

⁽¹⁾ AMEL = ECA per section 1.4.B, Step 6 of SIP

⁽²⁾ Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-12. Summary of Water Quality-Based Effluent Limitations, Discharge Point No. D-001 (Ag Drain C) and D-002 (GCID Lateral 26-2)

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Other
Total Residual Chlorine	mg/L			0.02 (1-hr average)	0.01 (4-Day Average)
Total Coliform Bacteria	MPN/100 mL			23	2.2 (7-Day Median)
pH	standard units			8.5 (maximum)	6.5 (minimum)
Nitrate	mg/L	10			
Ammonia ^a	mg/L	1.30 (Ag Drain C), 0.63 (GCID Lateral 26-2)		2.61 (Ag Drain C), 1.27 (GCID Lateral 26-2)	
	lbs/day ^c	13.01 (Ag Drain C), 6.33 (GCID Lateral 26-2)		26.11 (Ag Drain C), 12.70 (GCID Lateral 26-2)	
Ammonia ^b	mg/L	1.43 (Ag Drain C), 0.77 (GCID Lateral 26-2)		2.87 (Ag Drain C), 1.55 (GCID Lateral 26-2)	
	lbs/day ^c	14.32 (Ag Drain C), 7.75 (GCID Lateral 26-2)		28.74 (Ag Drain C), 15.55 (GCID Lateral 26-2)	
Dibromochloromethane	ug/L	0.41	0.82		
Dichlorobromomethane	ug/L	0.56	1.13		
Electrical Conductivity					845 (Annual Average)

^a For the period of May 1 through October 31
^b For the period of November 1 through April 30
^c Based upon a design treatment capacity of 1.2 mgd

5. Whole Effluent Toxicity (WET)

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

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

a. Acute Aquatic Toxicity.

The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00) The Basin Plan also states that, “*...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...*”. USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

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

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

b. Chronic Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00) Based on chronic WET testing performed by the Discharger from January 2006 through May 2010, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding one (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.

The Monitoring and Reporting Program of this Order requires **two** chronic WET monitoring events for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a. of the Order requires the Discharger to submit to the Central Valley

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

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 Region¹ 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). This Order also includes a narrative effluent chronic toxicity trigger, chronic WET monitoring requirements, and a provision that requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity.

To ensure compliance with the Basin Plan’s narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity

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

exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if toxicity has been demonstrated.

D. Final Effluent Limitations

- a. The following table summarizes the final effluent limitations for Discharge Point D-001 and D-002:

Table F-13. Final Effluent Limitations for Discharge Point No. D-001 (Ag Drain C) and D-002 (GCID Lateral 26-2)

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Other
Biochemical Oxygen Demand 5-day @ 20°C	mg/L ^a	10	15	30	
	lbs/day ^b	100	150	300	
Total Suspended Solids	mg/L ^a	10	15	30	
	lbs/day ^b	100	150	300	
Total Residual Chlorine	mg/L			0.02 (1-hr average)	0.01 (4-Day Average)
Total Coliform Bacteria	MPN/100 mL			23	2.2 (7-Day Median)
Nitrate	mg/L	10			
Ammonia ^c	mg/L	1.30 (Ag Drain C), 0.63 (GCID Lateral 26-2)		2.61 (Ag Drain C), 1.27 (GCID Lateral 26-2)	
	lbs/day ^b	13.01 (Ag Drain C), 6.33 (GCID Lateral 26-2)		26.11 (Ag Drain C), 12.70 (GCID Lateral 26-2)	
Ammonia ^d	mg/L	1.43 (Ag Drain C), 0.77 (GCID Lateral 26-2)		2.87 (Ag Drain C), 1.55 (GCID Lateral 26-2)	
	lbs/day ^b	14.32 (Ag Drain C), 7.75 (GCID Lateral 26-2)		28.74 (Ag Drain C), 15.55 (GCID Lateral 26-2)	
Dibromochloromethane	ug/L	0.41	0.82		
Dichlorobromomethane	ug/L	0.56	1.13		
Electrical Conductivity					845 (Annual Average)
^a To be ascertained by a 24-hour composite ^b Based upon a design treatment capacity of 1.2 mgd ^c For the period of May 1 through October 31 ^d For the period of November 1 through April 30					

- b. Percent Removal.** The average monthly percent removal of 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) shall not be less than 85 percent.
- c. 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.
- d. pH.** The discharge shall not have a pH less than 6.5 nor greater than 8.5.
- e. Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 1.2 mgd.

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and 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 of 1.2 mgd.

2. Averaging Periods for Effluent Limitations.

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, USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. *“First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge’s potential for causing acute toxic effects would be missed.”* (TSD, pg. 96) This Order utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia, chlorodibromomethane, and dichlorobromomethane 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, TSS, pH, coliform and total residual chlorine, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The

rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3. of this Fact Sheet.

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

3. Satisfaction of Anti-Backsliding Requirements

All effluent limitations in this Order are at least as stringent as the effluent limitations in the existing Order. This Order contains new effluent limits for Ammonia, Nitrate EC, Dibromochloromethane, and Dichlorobromomethane.

Order No. R5-2006-0009 contained effluent limitations for turbidity. The prior limitations were to ensure the treatment system was functioning properly and could meet the limits for solids and coliform. The prior effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity is an operational parameter to determine proper system functioning and not a WQBEL.

This Order contains performance-based operational turbidity specifications to be met in lieu of effluent limitations. The revised Order does not include effluent limitations for turbidity. However, the performance-based specification in this Order is an equivalent limit that is not less stringent, and therefore does not constitute backsliding.

The revised operational specifications for turbidity are the same as the effluent limitations in Order No. R5-2006-0009. These revisions are consistent with State regulations implementing recycled water requirements.

The revision in the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16 because this Order imposes equivalent or more stringent requirements than Order No. R5-2006-0009 and therefore does not allow degradation.

4. Satisfaction of Antidegradation Policy

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to

cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD, total suspended solids and pH. The WQBELs consist of restrictions on ammonia, total coliform, chlorodibromomethane, and dichlorobromomethane and EC. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations for ammonia, chlorodibromomethane, dichlorobromomethane, electrical conductivity and nitrate to meet numeric objectives or protect beneficial uses.

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

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

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

A. Surface Water

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

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain

chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. Nitrate, which was found to be present in the wastewater at an average concentration of up to 16.6 mg/L as nitrogen, has the potential to degrade groundwater quality because there is little ability for attenuation in the shallow permeable vadose zone beneath the Facility. Groundwater monitoring data show nitrate concentrations are below the primary MCL of 10 mg/L in monitoring wells (upgradient at 4.50 mg/l, downgradient at 6.37 mg/L). The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California primary MCL for nitrate is equivalent to 10 mg/L as nitrogen, and groundwater beneath the facility is designated as municipal or domestic supply.
4. Comparing the results from data from the upgradient and downgradient monitoring wells indicates that the Facility does not appear to be impacting groundwater quality
5. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

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

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD₅ and TSS reduction requirements). The monitoring frequencies have been retained from Order No. **R5-2006-0009**.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for BOD, TSS, Total Residual Chlorine, Total Coliform, Turbidity, pH, and Flow have been retained from Order No. **R5-2006-0009** to determine compliance with effluent limitations for these parameters.
3. Order No. R5-2006-0009 required monthly annual priority pollutant effluent monitoring for the first year of the new treatment system and annually thereafter. This Order required annual priority pollutant effluent monitoring.
4. 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 [Central Valley Water Board] shall establish interim requirements...that require additional monitoring for the pollutant...*” All reported detection limits for are greater than or equal to corresponding applicable water quality criteria or objectives. Monitoring for these constituents has been included in this Order in accordance with the SIP.
5. New monitoring requirements are included for standard minerals, nitrate, dibromochloromethane and dichlorobromomethane.

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.** The previous Order No. R5-2006-0009 required one chronic toxicity test during the permit term. Chronic whole effluent toxicity testing is being increased to twice during the permit cycle 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.
- b. Receiving water monitoring frequencies and sample types for pH, dissolved oxygen, turbidity, temperature, EC, fecal coliform bacteria, and ammonia have

been retained from Order No. R5-2006-0009 to determine compliance with effluent limitations for these parameters.

- c. Order No. R5-2006-0009 required monthly annual priority pollutant receiving water monitoring for the first year of the new treatment system and annually thereafter. This Order required annual priority pollutant receiving water monitoring.

2. Groundwater

- a. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.6.a. of this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. Water Supply Monitoring

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

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

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

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the

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

B. Special Provisions

1. Reopener Provisions

- a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- 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 dibromochloromethane and dichlorobromomethane. 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. **Constituent Study.** There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives. This Order requires the Discharger to complete a study of these constituents' potential effect in the receiving water. This reopener provision allows the Central Valley Water Board to reopen this Order for addition of effluent limitations and requirements for these constituents if after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective.
- e. **Salinity Evaluation and Minimization Plan.** This Order requires the Discharger to prepare a Salinity Evaluation and Minimization Plan (SEMP). This reopener provision allows the Central Valley Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for salinity based on review and implementation of the SEMP.

- f. New Information.** This Order may be reopened and modified as necessary when new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance, including approved process changes or an updated mixing zone/dilution study. For example, modifications to the Chronic Whole Effluent Toxicity Accelerated Monitoring Trigger, or the effluent limitations for chlorine disinfection byproducts or ammonia, may be appropriate.
- g. Effluent Quality and Treatment Performance.** The treatment processes employed at the treatment plant were designed and intended to provide specific pollutant removal efficiency. This Order contains effluent limitations that are partially based on the treatment plant's ability to remove pollutants. This Order also considers the assimilative capacity in the receiving water to minimize the impact of pollutants discharged from the treatment plant. Therefore, if a trend of declining treatment plant pollutant removal efficiency, or a trend of increasing effluent pollutant concentrations is observed, the Discharger is required to submit an Effluent Quality and Treatment Performance Study that identifies the cause of the change in effluent quality. If the Central Valley Board determines that the change and resulting degradation is not warranted or not in compliance with the anti-degradation policy, then this Order may be reopened, and the effluent limitations tightened, or other regulatory measures may be employed to ensure that the quality of the receiving water is not unnecessarily degraded.
- h. Constituents of Emerging Concern (CECs).** The State Water Resources Control Board is conducting studies on CECs discharged from wastewater treatment plants. Upon completion of the studies and formulation of recommendations for CEC monitoring, this Order may be reopened for addition of monitoring or special studies of CECs in the treatment plant discharge.
- i. Reasonable Potential for Constituents with Insufficient Information.** This Order may be reopened, and appropriate effluent limitations added, if results from the Monitoring and Reporting Program indicate additional constituents are present at concentrations that have the reasonable potential to cause or contribute to an exceedance of applicable water quality criteria or objectives.

2. Special Studies and Additional Monitoring Requirements

- a. Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8). Based on whole effluent chronic toxicity testing performed by the Discharger from January 2006 through May 2010, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective, to be conducted twice during the permit cycle.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, this provision requires the Discharger to submit to the Central Valley Water Board an Initial Investigative TRE Workplan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if of toxicity is demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of 1 TU_c (where TU_c = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent. The Discharger may collect additional chronic toxicity data that would enable the Central Valley Water Board to evaluate the appropriateness of applying specific dilution credits to the chronic toxicity monitoring trigger. The reopener provision in Section C.1.b.ii of the Permit would be exercised to modify the chronic toxicity monitoring trigger, if warranted.

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

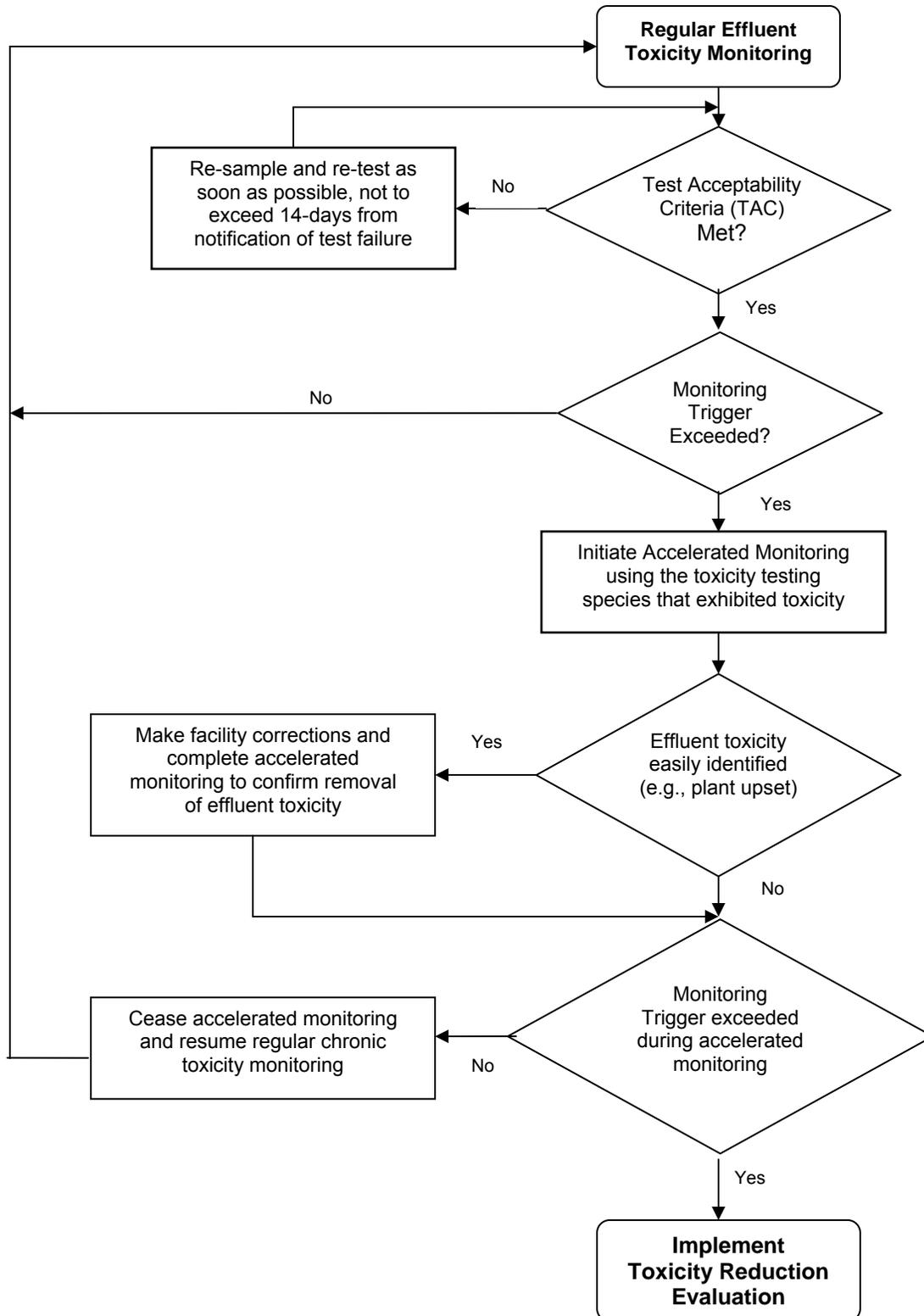
The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water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

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

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

- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.
- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.
- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.
- Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

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



b. Salinity Evaluation and Minimization Plan. The Discharger shall prepare a Salinity Evaluation and Minimization Plan to address sources of salinity from the Facility. The plan shall be completed and submitted to the Central Valley Water Board **within 6 months of the adoption date of this Order** for the approval by the Executive Officer.

Table F-14. Salinity Evaluation and Minimization Plan

<u>Task</u>	<u>Compliance Date</u>
1. Submit Work Plan and Time Schedule	Within 6 months of the effective date of the Order
2. Begin Study	Within 3 months of Central Valley Water Board approval of Workplan and Time Schedule
3. Complete Study	As established by Task 1
4. Submit Final Report	60 days following completion of Task 3 (no greater than 2 years after the effective date of this Order)

c. Best Practical Treatment or Control (BPTC). The Discharger shall submit, a BPTC Evaluation Work Plan for a comprehensive technical evaluation of the Facility's waste treatment control, to determine BPTC of its discharge, to meet requirements of State Water Board Resolution 68-16. The work plan shall include a preliminary evaluation of each component of the waste management system and propose a time schedule for completing the comprehensive technical evaluation.

Following completion of the evaluation, the Discharger shall submit to the Central Valley Water Board, a technical report describing the evaluation's results and critiquing the treatment facility with respect to the BPTC. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications to achieve BPTC and identify the source(s) of funding and proposed schedule for modifications. The Discharger shall comply with the following schedule in conducting a BPTC Study.

Table F-15. BPTC Study

<u>Task</u>	<u>Compliance Date</u>
i. Submit Work Plan and Time Schedule for approval by the Executive Officer.	Within 6 months following the effective date of this Order.
ii. Commence comprehensive evaluation	30 days following Executive Officer approval of Task i.
iii. Complete study and submit summary report	As established by Task i and/or 2 years following Task ii, whichever is sooner.

d. Effluent and Receiving Water Characterization Study. An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third and fourth year of this permit term, the Discharger shall conduct annual monitoring of the effluent at EFF-001 and of the receiving water at RSW-001 or RSW-003 (dependent upon which receiving water location is being used) for all priority pollutants and other constituents of concern as described in Attachment I. Dioxin and Furan sampling shall be performed only twice during the third year, as described in Attachment J. The report shall be completed in conformance with the following schedule.

Table F-16. Effluent and Receiving Water Characterization Study

<u>Task</u>	<u>Compliance Date</u>
i. Submit Work Plan and Time Schedule	No later than 2 years 6 months from adoption of this Order
ii. Conduct annual ¹ monitoring	During third/fourth year of permit term
iii. Submit Final Report	6 months following completion of final monitoring event
¹ Dioxin and Furan sampling shall be performed only twice during the third year, as described in Attachment J.	

f. Constituent Study. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives for ammonia, nitrate, dichlorobromomethane and dibromochloromethane. This Order requires the Discharger to complete a study of these constituents' potential effect in the receiving water. If after a review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order may be reopened and effluent limitations added for the subject constituents.

Table F-17. Constituent Study

<u>Task</u>	<u>Compliance Date</u>
1. Submit Workplan and Time Schedule	Within 6 months of the effective date of this Order
2. Begin Study	Within 3 months of Central Valley Water Board approval of Workplan and Time Schedule
3. Complete Study	As established by Task 1
4. Submit Study Report	60 days following completion of Task 3 (no greater than 2 years after the effective date of this Order)

3. Best Management Practices and Pollution Prevention – Not Applicable

4. Construction, Operation, and Maintenance Specifications

- a. Certified Operator Requirement.** The Discharger shall provide certified wastewater treatment plant operators in accordance with regulations adopted by the State Board.
- b. Flow Equalization Storage Basin 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. Basins 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 2 feet (measured vertically to the lowest point of overflow) at the last downstream pond.
- c. Turbidity Operational Requirements.** Turbidity is included as an operational specification as an indicator of the effectiveness of the treatment process and to assure compliance with effluent limitations for total coliform organisms. The treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 NTU as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity shall not exceed 2 NTU as a daily average; and 5 NTU daily maximum. Turbidity specifications are included as operating criteria in section VI.C.4.b of this Order to ensure that adequate disinfection of wastewater is achieved.

5. Special Provisions for Municipal Facilities

- a. Pretreatment Requirements – Not applicable.**
- b.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General

Order) on 2 May 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions. **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.**

6. Other Special Provisions

- a. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.
- b. **Technical Reports.** All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretations 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.
- c. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition or limitation contained in this Order, this Order requires the Discharger to notify the Central Valley Water Board by telephone (530) 224-4845 (or to the Central Valley Water Board engineer assigned to the facility) within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall include the information required by Federal Standard Provision [40 CFR 122.41(l)(6)(i)].
- d. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger must obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).

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 this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the person responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory paragraph of Federal Standard Provision V.B.5 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules – Not Applicable

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Parties

The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through physical posting (posting at city offices, county courthouse or city hall) and internet posting.

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

To be fully responded to by staff and considered by the Central Valley Water Board, written comments must be received at the Central Valley Water Board offices by 5:00 p.m. on 05 May 2011.

C. Public Hearing

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

Date: **<Public Hearing Date>**
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

Please be aware that dates and venues may change. Our Web address is 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 Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Central Valley Water Board's action to the following address:

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (530) 224-4845.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to **Heidi Bauer** at **(530) 224-4996**.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Dibromochloromethane	µg/L	5.3	<0.5 (ND)	0.41	--	--	--	--	--	80	Yes
Dichlorobromomethane	µg/L	20.2	<0.5 (ND)	0.56	--	--	--	--	--	80	Yes
Ammonia	mg/L	1.05	0.12	0.52	--	--	--	--	--	50	Yes

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

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Available

ND = Non-detect

ATTACHMENT H – CALCULATION OF QBELS

Parameter	Units	Most Stringent Criteria			Dilution Factors			Aquatic Life Calculations									Final Effluent Limitations	
		HH	CMC	CCC	HH	CMC	CCC	ECA Multiplier acute	LTA acute	ECA Multiplier chronic	LTA chronic	Lowest LTA	AMEL Multiplier 95	AMEL	MDEL Multiplier 99	MDEL	Lowest AMEL	Lowest MDEL
Dibromochloromethane	ug/L	0.41	--	--	0	0	0	--	--	--	--	--	1.55	0.41	3.11	0.82	0.41	0.82
Dichlorobromomethane	ug/L	0.56	--	--	0	0	0	--	--	--	--	--	1.55	0.56	3.11	1.13	0.56	1.13

ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

- I. Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:
- A. Drinking water constituents.** Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
 - B. Effluent and receiving water temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan’s thermal discharge requirements.
 - C. Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.
 - D. Dioxin and furan sampling.** Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment J. Pursuant to Section 13267 of the California Water Code, this Order includes a requirement for the Discharger to submit monitoring data for the effluent and receiving water as described in Attachment J.
- II. Monitoring Requirements.**
- A. Twice During the Life of the Permit Monitoring.** Priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001 or RSW-003) and analyzed for the constituents listed in Table I-1 twice during the life of the permit (in the third and fourth year). The results of such monitoring be submitted to the Central Valley Water Board, during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Semi-annual Monitoring (dioxins and furans only). Semi-annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Central Valley Water Board with the priority data at the completion of the Effluent and Receiving Water Characterization Study, and during the fourth year of the permit term.

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

D. Sample type. All effluent samples shall be taken as 24-hour composite samples. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted ¹		
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as CaCO ₃)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO ₃)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	°C		
	Total Dissolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

- (1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.
- (2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.
- (3) - For haloethers
- (4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22°C.
- (5) - For nitrophenols.
- (6) - For chlorinated naphthalenes.
- (7) - For phthalate esters.
- (8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.
- (9) - Criteria for sum of alpha- and beta- forms.
- (10) - Criteria for sum of all PCBs.
- (11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:
Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and
Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

- B. Criterion Quantitation Limit (CQL).** The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to use these specific procedures as long as the procedure selected achieves the desired minimum detection level.
- C. Method Detection Limit (MDL).** The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
- D. Reporting Limit (RL).** The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.
- E. Reporting Protocols.** The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:
1. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
 2. Sample results less than the reported 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.
 3. 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 shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or – a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.
 4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

F. Data Format. The monitoring report shall contain the following information for each pollutant:

1. The name of the constituent.
2. Sampling location.
3. The date the sample was collected.
4. The time the sample was collected.
5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.
6. The analytical method utilized.
7. The measured or estimated concentration.
8. The required Criterion Quantitation Limit (CQL).
9. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
10. The laboratory's lowest reporting limit (RL).
11. Any additional comments.

ATTACHMENT J – DIOXIN AND FURAN SAMPLING

The CTR includes criteria for 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD). In addition to this compound, 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. The USEPA has published toxic equivalency factors (TEFs) for 17 of the congeners. The TEFs express the relative toxicities of the congeners compared to 2,3,7,8-TCDD (whose TEF equals 1.0). In June 1997, participants in a World Health Organization (WHO) expert meeting revised TEF values for 1,2,3,7,8-PentaCDD, OctaCDD, and OctaCDF. The current TEFs for the 17 congeners, which include the three revised values, are shown below:

Toxic Equivalency Factors (TEFs) for 2,3,7,8-TCDD Equivalents

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

The Discharger shall conduct effluent and receiving water monitoring for the 2,3,7,8-TCDD congeners listed above to assess the presence and amounts of the congeners being discharged and already present in the receiving water. Effluent and upstream receiving water shall be monitored for the presence of the 17 congeners once during dry weather and once during wet weather for 1 year within the term of the study (during the third year of the permit).

The Discharger shall report, for each congener, the analytical results of the effluent and receiving water monitoring, including the quantifiable limit and the method detection limit, and the measured or estimated concentration.

In addition, the Discharger shall multiply each measured or estimated congener concentration by its respective TEF value and report the sum of these values.

ATTACHMENT K - SUMMARY OF SPECIAL STUDIES / SIGNIFICANT COMPLIANCE DATES

Following is a summary of all of the special studies and significant compliance dates that are required by this order:

Compliance Date (Actual Date)	Task	Compliance Date (Narrative)
Initial Investigative TRE Workplan		
XXXXXXXXXX	Submit Initial Investigate TRE Workplan	Within 90 days of the effective date of this Order
Constituent Study - Ammonia, Nitrate, Dichlorobromomethane and Dibromochloromethane		
XXXXXXXXXX	i. Submit Workplan and Time Schedule	Within 6 months following the effective date of this Order
XXXXXXXXXX	ii. Begin study	Within 3 months of Central Valley Water Board approval of Workplan and Time Schedule
XXXXXXXXXX	iii. Complete study	As established by Task i.
XXXXXXXXXX	iv. Submit study report	60 days following completion of Task iii. (no greater than 2 years after the effective date of this Order)
BPTC Study		
XXXXXXXXXX	i. Submit Work Plan and Time Schedule for approval by the Executive Officer.	Within 6 months following the effective date of this Order.
XXXXXXXXXX	ii. Commence comprehensive evaluation	30 days following Executive Officer approval of Task i.
XXXXXXXXXX	iii. Complete study and submit summary report	As established by Task i and/or 2 years following Task ii, whichever is sooner.
Effluent and Receiving Water Characterization Study		
XXXXXXXXXX	i. Submit Work Plan and Time Schedule	No later than 2 years 6 months from adoption of this Order
XXXXXXXXXX	ii. Conduct annual monitoring	During third/fourth year of permit term (two samples)
XXXXXXXXXX	iii. Submit Final Report	6 months following completion of final monitoring event
Dioxin and Furan Sampling		
XXXXXXXXXX	Collect wastewater and surface water samples for dioxin and furan	Effluent and upstream receiving water shall be monitored for the presence of the 17 congeners once during dry weather and once during wet weather for 1 year within the term of the study (during the third year of the permit)
Salinity Evaluation and Minimization Plan		
XXXXXXXXXX	1. Submit Work Plan and Time Schedule	Within 6 months of the effective date of the Order
XXXXXXXXXX	2. Begin Study	Within 3 months of Central Valley Water Board approval of

		Workplan and Time Schedule
XXXXXXXXXX	3. Complete Study	As established by Task 1
XXXXXXXXXX	4. Submit Final Report	60 days following completion of Task 3 (no greater than 2 years after the effective date of this Order)
Report of Waste Discharge		
XXXXXXXXXX	Draft ROWD	Due One Year prior to expiration of permit
XXXXXXXXXX	Final ROWD	Due 6 months prior to expiration of permit
Laboratory Detection Report		
XXXXXXXXXX	Reporting levels, MDLs, and Analytical Methods	Within 60 days of adoption of permit