CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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ORDER NO. R5-2011-XXXX
NPDES NO. CA0079022
WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF LIVE OAK WASTEWATER TREATMENT PLANT SUTTER COUNTY

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

Table 1. Discharger Information

Discharger	City of Live Oak
Name of Facility	City of Live Oak Wastewater Treatment Plant
Facility Address	3450 Treatment Road
	Live Oak, CA 95953
	Sutter 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 Live Oak 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
001	Domestic/Municipal Wastewater	39º 15’ 48” N	121º 40’ 42” W	Reclamation District 777 Lateral Drain No. 1 or 2

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**XX June 2011**
This Order shall become effective on:	**50 days after the adoption of this Order**
This Order shall expire on:	**1 June 2016**
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**

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 **XX June 2011.**

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PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

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

Table 4. Facility Information

Discharger	City of Live Oak
Name of Facility	City of Live Oak Wastewater Treatment Plant
Facility Address	3450 Treatment Road
	Live Oak, CA 95953
	Sutter County
Facility Contact, Title, and Phone	Mr. Jim Goodwin City Manager 530.695.2112
Mailing Address	9955 Live Oak Boulevard Live Oak, CA 95953
Type of Facility	Publicly Owned Treatment Works
Facility Permitted Flow	1.4 million gallons per day (MGD) average dry weather flow (ADWF)
Current Facility Design Flow	1.4 MGD

II. FINDINGS

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

A. Background. The City of Live Oak (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2004-0096 and National Pollutant Discharge Elimination System (NPDES) Permit No.CA0079022. The Discharger submitted a Report of Waste Discharge on 30 September 2008, and applied for a NPDES permit renewal to discharge up to 1.4 MGD of treated wastewater from the City of Live Oak Wastewater Treatment Plant, (hereinafter Facility).

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

B. Facility Description. The Discharger owns and operates the Publicly Owned Treatment Works. The Discharger provides sewerage service for the City of Live Oak and serves a population of approximately 8,000. The design daily average dry weather flow capacity of the Facility is 1.4 MGD. The Facility currently provides secondary treatment of domestic wastewater from within the City limits. The collection system consists of 25 miles of sewer lines and six pump stations. The Discharger’s potable water is supplied by five City-owned groundwater wells. The current Facility consists of aerated lagoons, oxidation ponds, disinfection by chlorine, and dechlorination. Wastewater is discharged from the Facility at Discharge Point No. 001 to the receiving water, Reclamation District 777 Lateral Drain No. 1 (a constructed agricultural drain), a

tributary to the East Interceptor Canal, then Wadsworth Canal, and then the Sutter Bypass.

The Discharger began construction of major tertiary treatment upgrades to the Facility in September 2009. The new tertiary treatment plant will include a lined equalization basin, an unlined emergency storage basin, and a stormwater detention basin. The upgraded treatment system will also include nitrification and will consist of an odor control system at the headworks, secondary feed pump station, selector basin, two oxidation ditches, two secondary clarifiers, cloth media filters, and ultraviolet disinfection system. Solids handling facilities will consist of storage basins and solar drying beds. Wastewater will be discharged from Discharge Point No. 001 and the plan for the new facility is to discharge to the Reclamation District 777 Lateral Drain No. 2 (a constructed agricultural drain). Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the new Facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (CWC; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

D. Background and Rationale for Requirements. The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through H are also incorporated into this Order.

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

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133 in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.

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, that are necessary to achieve water quality

standards. The Central Valley Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, 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 River 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 Reclamation District 777 Lateral Drain No. 1 or for Lateral Drain No. 2, but does identify present and potential uses for the Sutter Bypass, to which Reclamation District 777 Lateral Drain No. 1 and Lateral Drain No. 2 are tributary. According to the Basin Plan, municipal and domestic supply is not a beneficial use of the Sutter Bypass.

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 Regional 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)
001	Reclamation District 777 Lateral Drain No. 1 and Reclamation District 777 Lateral Drain No. 2 (planned for new facility)	Existing: Municipal and domestic supply (MUN); Agricultural irrigation (AGR); Water contact recreation (REC-1); Warm freshwater habitat (WARM); Cold freshwater migration (MGR); Spawning, reproduction, and/or early development (SPWN); Wildlife habitat (WILD). Intermittent: Ground water recharge (GWR); Freshwater replenishment (FRSH).

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*." Wadsworth Canal is listed as a WQLS for diazinon in the current final 303(d) list of impaired water bodies, but the Sutter Bypass and the East Interceptor Canal are not listed. However, on 11 June 2009, the Central Valley Water Board approved the updated 303(d) list (Integrated Report) for the Central Valley Region that, in part, identified Sutter Bypass as impaired for mercury and Wadsworth Canal also impaired for chlorpyrifos. The State Water Board approved the Integrated Report on 4 August 2010, and the Integrated Report to update the 303(d) list has been submitted to USEPA for final approval. The Discharger has been monitoring diazinon on a monthly basis according to Order No. R5-2004-0096 and the monitoring results show no reasonable potential, therefore, a final effluent limit for diazinon is not included in this Order. Monitoring results show no reasonable potential for mercury, but because mercury is bioaccumulative, a final mass-based effluent limit is included in this Order. Additionally, monitoring is included for diazinon, mercury, and chlorpyrifos in the Monitoring and Reporting Program (Attachment E) of 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.

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 (BOD_5), total suspended solids (TSS), total coliform organisms, and pH. The WQBELs consist of restrictions on chlorine residual, aluminum, ammonia, BOD_5, TSS, copper, cadmium, 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 nitrate, dibromochloromethane, dichlorobromomethane, total trihalomethanes (THMs), arsenic, iron, manganese, alpha BHC, 4,4'-DDE, alpha Endosulfan, Endrin Aldehyde, and electrical conductivity 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 [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent that those in Order No. R5-2004-0096. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

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

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in sections V.B, and VI.C. 4.b. and 6.a. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

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

U. Consideration of Public Comment. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2004-0096 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the CWC.

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

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point No. 001

1. Final Effluent Limitations – Discharge Point No. 001

Effective immediately, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001and at Monitoring Location EFF-002 as described in the Monitoring and Reporting Program (Attachment E):

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

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	20	--	--
	lbs/day[1]	120	180	230	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	120	180	230	--	--
pH	standard units	--	--	--	6.5	8.3
Ammonia, Total (as N)	mg/L	1.4	--	2.8	--	--
	lbs/day[1]	16	--	33	--	--
Aluminum, Total Recoverable	µg/L	260	--	750	--	--
Arsenic	µg/L	10	--	20.1	--	--
Copper, Total Recoverable	µg/L	15	--	28	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Cadmium, Total Recoverable	µg/L	3.8	--	7.6	--	--
Dibromochloromethane	µg/L	0.41	--	0.82	--	--
Dichlorobromomethane	µg/L	0.56	--	1.2	--	--
Alpha BHC	µg/L	--	--	--	--	ND
4,4'-DDE	µg/L	--	--	--	--	ND
Alpha Endosulfan	µg/L	--	--	--	--	ND
Endrin Aldelhyde	µg/L	--	--	--	--	ND
Nitrate (as N)	mg/L	10	--	--	--	--
Total Trihalomethanes	µg/L	80	--	--	--	--

1 Mass-based effluent limitations are based on a permitted average dry weather flow of 1.4 MGD.

b. Percent Removal. The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) 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. Effective 30 September 2012, there shall be no chronic toxicity in the effluent discharge.

e. Total Residual Chlorine. Effluent total residual chlorine shall not exceed:

i. 0.011 mg/L, as a 4-day average; and
ii. 0.019 mg/L, as a 1-hour average.

f. Total Coliform Organisms. Effluent total coliform organisms shall not exceed:

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

g. Average Dry Weather Flow. The average dry weather discharge flow shall not exceed 1.4 MGD.

h. Iron. For a calendar year, the annual average effluent total recoverable iron shall not exceed 300 µg/L.

i. Manganese. For a calendar year, the annual average effluent total recoverable manganese shall not exceed 50 µg/L.

j. **Aluminum.** For a calendar year, the annual average effluent total recoverable aluminum shall not exceed 200 µg/L.

k. **Electrical Conductivity.** For a calendar year, the annual average effluent electrical conductivity shall not exceed 1100 µmhos/cm.

l. **Mercury.** Effective immediately, the total calendar year annual mass discharge of total mercury shall not exceed 0.057 lbs. This performance-based limitation shall be in effect until the Central Valley Water Board establishes final effluent limitations after adoption of a mercury TMDL.

2. Interim Effluent Limitations

a. **Total Trihalomethanes. Effective immediately and ending by 3 years from the adoption date of this Order, or compliance with the final effluent limits, whichever is sooner**, the Discharger shall maintain compliance with the interim effluent limitation at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program (Attachment E). The interim effluent limitation for Total Trihalomethanes is 567.3 µg/L as a daily average. This interim effluent limitation shall apply in lieu of the final effluent limitation for Total Trihalomethanes specified in Table 6 of this Order during the time period specified in this provision.

b. **Arsenic. Effective immediately and ending by 5 years from the adoption date of this Order, or compliance with the final effluent limits, whichever is sooner,** the Discharger shall maintain compliance with the interim effluent limitation at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program (Attachment E). The interim effluent limitation for Arsenic is 88.9 µg/L as a daily average. This interim effluent limitation shall apply in lieu of all of the final effluent limitations for Arsenic specified in Table 6 of this Order during the time period specified in this provision.

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 Reclamation District 777 Lateral Drain No. 1 or Lateral Drain No. 2:

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

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

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

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

5. **Dissolved Oxygen.** The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

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

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

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

9. **Pesticides:**

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

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

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

   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);

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

   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor

   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

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

    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 instantaneous natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at RSW-001 and RSW-002.

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

17. **Turbidity.**

    a. Turbidity to exceed 2 Nephelometric Turbidity Unit (NTU) where natural turbidity is less than 1 NTU;

    b. Turbidity to increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;

    c. Turbidity to increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;

    d. Turbidity to increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

e. Turbidity to increase more than 10 percent where natural turbidity is greater than 100 NTUs.

Compliance to be determined based on the difference in turbidity at RSW-001 and RSW-002.

B. Groundwater Limitations

1. Release of waste constituents from any portion of the Facility shall not cause groundwater to contain waste constituents in concentrations greater than background water quality or water quality objectives, whichever is greater. The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

i. violation of any term or condition contained in this Order;

ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under section 405(d) of the 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 the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the 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(l)(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:

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

e. Water Effects Ratios (WER) and Metal Translators. A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for aluminum, copper, and cadmium. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

f. Salinity/EC Site-Specific Studies. This Order requires the Discharger to complete and submit a report on the results of salinity/EC site-specific studies to determine appropriate salinity/EC levels necessary to protect downstream beneficial uses. The studies shall be completed and submitted to the Central Valley Water Board as specified in section VI.C.2.b of this Order. Based on a review of the results of the report on the salinity/EC site-specific studies this

Order may be reopened to modify the effluent limitation and requirements for salinity and/or EC.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Chronic Whole Effluent Toxicity. For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits toxicity 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;

(b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and

(c) A discussion of who will conduct the Toxicity Identification Evaluation (TIE), if necessary (e.g., an in-house expert or outside contractor).

ii. Accelerated Monitoring and TRE Initiation. Effective 1 October 2012, when the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

iii. Numeric Toxicity Monitoring Trigger. Effective 1 October 2012, the numeric toxicity monitoring trigger to initiate a TRE is > 1 TU_C (where TU_C = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits toxicity.

iv. Accelerated Monitoring Specifications. Effective 1 October 2012, if the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests conducted once every 2 weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

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

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

(3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Central Valley Water Board a detailed TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing

or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1].

b. Salinity/EC Site-Specific Study. If, after one year following construction of the tertiary Facility, the effluent EC level is greater than 700 µmhos/cm for the annual average EC discharge, the Discharger shall complete and submit to the Central Valley Water Board a report on the results of a site-specific investigation of appropriate EC levels to protect the beneficial uses of the receiving water (i.e. AGR and MUN). For protection of the AGR beneficial use the study must consider how climate, soil chemistry, background water quality (surface water and groundwater), rainfall, and flooding affect salinity (EC) requirements necessary to protect the AGR beneficial use. The study shall include, at minimum, the following:

i. The most salt sensitive crops in areas irrigated with Reclamation District 777 Lateral Drain No. 1 or Lateral Drain No. 2 waters in the vicinity of the discharge under reasonable worst-case conditions.

ii. The sodium adsorption ratio of soils in the affected area.

iii. The alkalinity of soils to whether site specific conditions would reduce fluoride impacts.

iv. The effects of rainfall and flood-induced leaching; and

v. The background receiving water quality.

Based on these factors, as well as economic and environmental impacts (such as increased irrigation water usage, groundwater hydraulics and degraded water quality), the study shall recommend site-specific numeric values for EC that provide reasonable protection for the agricultural supply use designation in the receiving water.

Task		Compliance Date
i.	Submit results and summary of EC monitoring from the tertiary Facility. If annual average effluent EC level is greater than 700 µmhos/cm, follow tasks ii. and iii. below.	**Within 15 months** following construction of the new tertiary Facility.
ii.	Submit Site-Specific Study Workplan and Time Schedule, for approval by the Executive Officer.	**Within 18 months** following construction of the new tertiary Facility.
iii.	Complete Site-Specific Study and submit Study Report.	**Within 15 months** following Executive Officer approval of the Workplan and Time Schedule.

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

3. Best Management Practices and Pollution Prevention

a. Salinity Evaluation and Minimization Plan. The Discharger shall prepare and implement a salinity evaluation and minimization plan to address sources of salinity from the Facility. The salinity evaluation and minimization plan shall be completed and submitted to the Central Valley Water Board **within 14 months of the effective date of this Order** for approval by the Executive Officer, and progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

b. Mercury Evaluation and Minimization Plan. The Discharger shall prepare and implement a mercury evaluation and minimization plan to address sources of mercury from the Facility. The plan shall be completed and submitted to the Central Valley Water Board **within 14 months of the adoption date of this Order** for the approval by the Executive Officer, and progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

4. Construction, Operation and Maintenance Specifications

a. Turbidity. Effluent turbidity shall not exceed the following upon initiation of operation of the new tertiary treatment facility:

i. 2 NTU, as a daily average;
ii. 5 NTU, more than 5% of the time within a 24-hour period; and
iii. 10 NTU, at any time.

b. Emergency Pond Operating Requirements.

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

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

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

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

(b) Weeds shall be minimized.

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

iv. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow.

v. The discharge of waste classified as "hazardous" as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or "designated", as defined in section 13173 of the CWC, to the treatment ponds is prohibited.

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

c. Ultraviolet (UV) Disinfection System Operating Requirements. The Discharger shall operate the UV disinfection system to provide a minimum UV dose of 100 millijoules per square centimeter (mJ/cm^2) at peak daily flow, unless otherwise approved by the California Department of Public Health.

i. The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, UV power, and turbidity.

ii. The Discharger shall operate the treatment system to insure that turbidity prior to disinfection shall not exceed specifications in Provision VI.C.4.a. of this Order

iii. The UV transmittance (at 254 nanometers) in the wastewater exiting the UV disinfection system shall not fall below 55 percent of maximum at any time.

iv. The quartz sleeve and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.

v. The sleeves must be cleaned periodically as necessary to meet the requirements.

vi. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

vii. The Facility must be operated in accordance with an operations and maintenance program that assures adequate disinfection.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Sludge/Biosolids Discharge Specifications

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (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 and disposal of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

b. Biosolids Disposal Requirements

i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.

ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and 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.

d. Collection System. On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003, a Statewide General WDR 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 WDR. The Discharger has applied for and has been approved for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order No. 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR 122.41(e)], report any non-compliance [40 CFR 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR 122.41(d)].

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

a. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the Department of Public Health (DPH; formerly the Department of Health Services) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. This Order does not include the requirements for unrestricted beneficial reuse contained in Chapter 3. For wastewater disposal, the Discharger is required to meet Title 22 tertiary numeric effluent quality (hence the use of "of equivalent"), but not the monitoring, alarm, process design, redundancy and storage requirements for beneficial reuse that is the full suite of Title 22 requirements.

7. Compliance Schedules

a. Compliance Schedule for Final Effluent Limitations for Arsenic and Total Trihalomethanes. This Order requires compliance with the final effluent limitations for total trihalomethanes by 3 years from the adoption date of this Order, and for arsenic by 5 years from the adoption date of this Order. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations:

Task	Compliance Due
i. Update and Implement Pollution Prevention Plan (PPP)[1] for Total Trihalomethanes and Arsenic	**Ongoing**
ii. Progress Reports[2]	**1 March and 1 September of each year**
iii. Achieve Full Compliance with the Effluent Limitations IV.A.1.a for Total Trihalomethanes.	**3 years from the adoption date of this Order**
iv. Achieve Full Compliance with the Effluent Limitations IV.A.1.a for Arsenic.	**5 years from the adoption date of this Order**

[1] The PPP for total trihalomethanes and arsenic shall be updated and implemented in accordance with CWC section 13263.3(d)(3) as outlined in the Fact Sheet (Attachment F, Section VII.B.7.b.).

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

VII. COMPLIANCE DETERMINATION

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

B. Aluminum Effluent Limitations (Section IV.A.1.a. and k.). Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

C. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.g.). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow

effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

D. **Total Coliform Organisms Effluent Limitations (Section IV.A.1.f.).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance.

E. **Total Residual Chlorine Effluent Limitations (Section IV.A.1.e.).** 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).

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

G. **Total Mercury Mass Loading Effluent Limitations (Section IV.A.2.b.).** The procedures for calculation mass loadings are as follows:

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

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

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

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

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations Section IV.A.1.a. and Interim Limitations Section IV.A.2.b. 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.

Bioaccumulative

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

Carcinogenic

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

Coefficient of Variation (CV)

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

Daily Discharge

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

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 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 Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

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

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

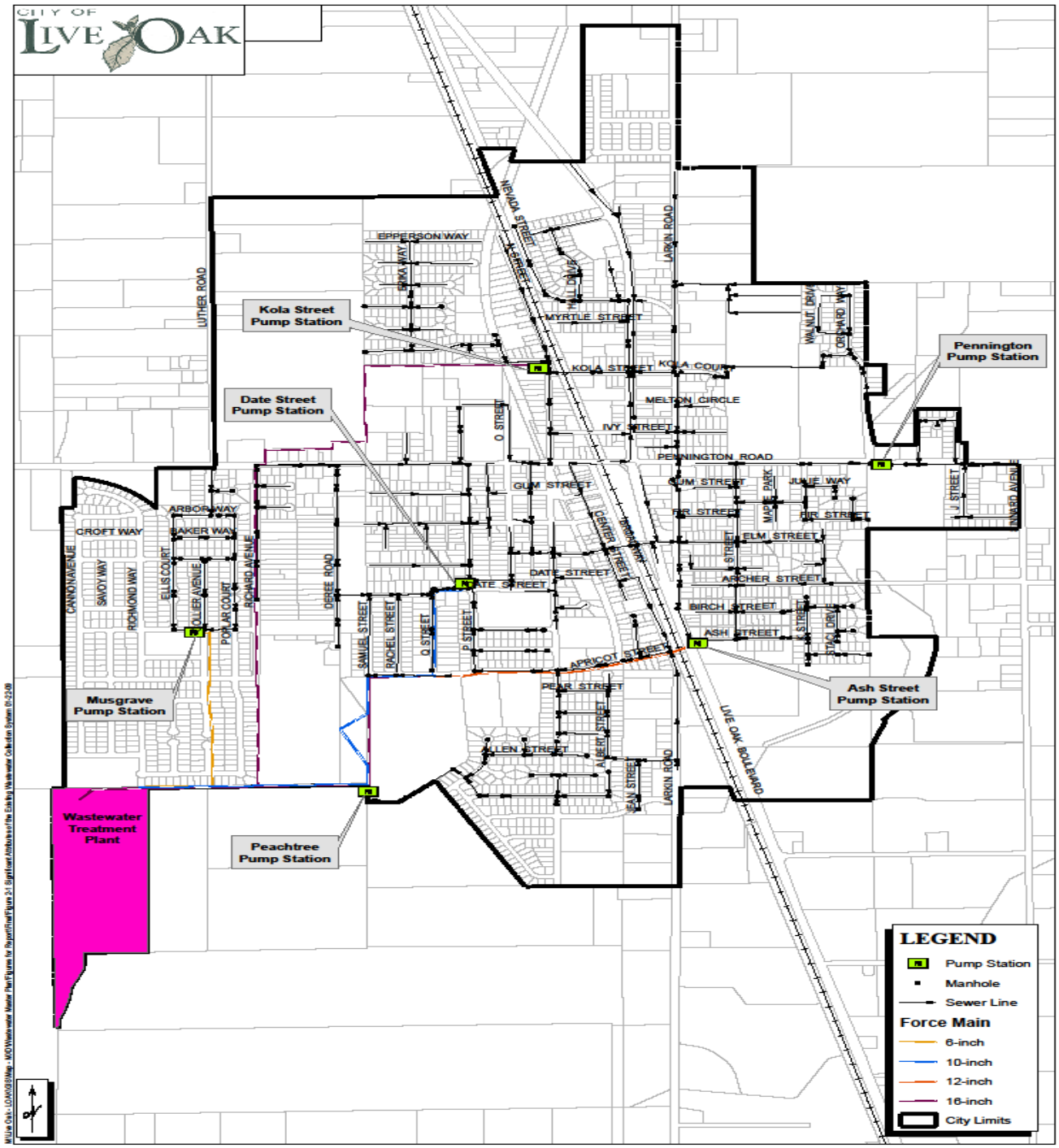
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

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

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.)

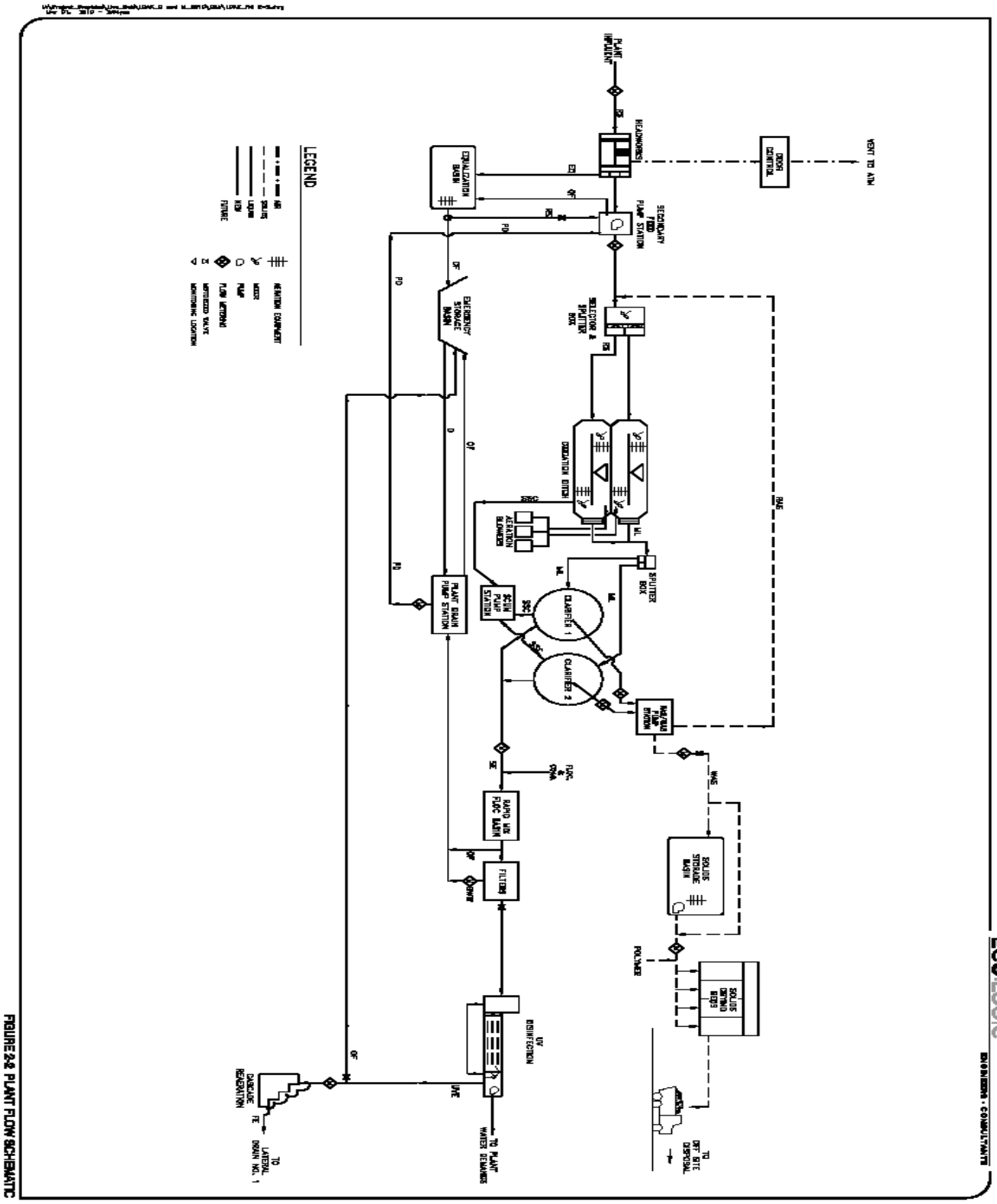
ATTACHMENT B – MAP



ECO:LOGIC Engineering
City of Live Oak Wastewater Collection System Master Plan

Figure 2-1
Significant Wastewater Collection System Attributes

ATTACHMENT C – FLOW SCHEMATIC (NEW PLANT UNDER CONSTRUCTION)



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

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

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

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR 122.41(i)(4).)

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i).)

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Central Valley Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C).)

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

5. Notice

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

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

H. Upset

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

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

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

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

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

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

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

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

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

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or USEPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); 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 CWC, 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 Regional 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 shall be conducted at a laboratory certified for such analyses by the Department of Public Health (DPH; formerly the Department of Health Services). In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Central Valley Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

D. All analyses shall be performed in a laboratory certified to perform such analyses by DPH. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board.

E. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, 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.

F. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

G. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of CWC section 13176, and must include quality assurance/quality control data with their reports.

H. 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.

I. 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.

J. 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	Location where a representative sample of the facility's influent can be obtained, prior to any additives, treatment processes, and plant return flows.
001[1]	EFF-001	Location where a representative sample of the facility's effluent can be obtained prior to discharge into the receiving water.
--	EFF-002	Location where a representative sample of the facility's effluent pH and turbidity can be obtained downstream of the facility's tertiary filters and upstream of the UV disinfection system. Note: New tertiary facility only.
	RSW-001[1]	Approximately 50 feet upstream of Discharge Point No. 001 to the receiving water.
--	RSW-002[1]	Approximately 200 feet downstream of Discharge Point No. 001 to the receiving water or upstream of the next ag drain.
--	BIO-001	Representative sample location for biosolids.
--	PLG-001	Representative sample location for pond/lagoon effluent. Note: Existing secondary facility only.
--	PND-001	Representative sample location for equalization pond effluent. Note: New tertiary facility only.
--	PND-002	Representative sample location for emergency storage pond effluent. Note: New tertiary facility only.
--	UVS-001	Representative sample location for the ultraviolet light disinfection system. Note: New tertiary facility only.

--	SPL-001	**A location where a representative sample for the municipal water supply can be collected. If the water supply is from more than one source, a flow weighted average should be calculated.**

[1] Currently the Facility discharges from Discharge Point No. 001 into the receiving water, Reclamation District 777 Lateral Drain No. 1; however, following completion of the new tertiary treatment system, the Facility will discharge into Reclamation District 777 Lateral Drain No. 2.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

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

Table E-2. Influent Monitoring for INF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	[1]
pH	Standard Units	Grab[2]	1/Week	[1]
BOD 5-day @ 20°C	mg/L	24-hr Composite[3]	1/Week	[1]
Total Suspended Solids	mg/L	24-hr Composite[3]	1/Week	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab[2]	1/Month	[1]
Total Dissolved Solids	mg/L	Grab[2]	1/Quarter	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; where no methods are specified for a given pollutant, method shall be approved by the Central Valley Water Board or the State Water Board.
[2] Grab samples shall <u>not</u> be collected at the same time each day to get a complete representation of variations in the influent.
[3] 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor tertiary treated 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 for EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	[1]
Chlorine, Total Residual	mg/L	Meter[8]	Continuous[8]	[1,8]
Tubidity[10]	NTU	Grab[7]	Daily	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Temperature	F (or as C)	Grab[7]	1/Week[5]	[1]
Total Coliform Organisms	MPN/100 mL	Grab[7]	2/Week	[1]
Electrical Conductivity @ 25 C	µmhos/cm	24-hr Composite[2]	1/Week	[1]
Biochemical Oxygen Demand 5-day @ 20 C	mg/L	24-hr Composite[2]	1/Week	[1]
	lbs/day	Calculate	1/Week	
Total Suspended Solids	mg/L	24-hr Composite[2]	1/Week	[1]
	lbs/day	Calculate	1/Week	
Ammonia, Total (as N)	mg/L	Grab[7]	1/Week[4,5]	[1]
	lbs/day	Calculate	1/Week	
Dissolved Oxygen	mg/L & % saturation	Grab[7]	1/Week	[1]
pH[10]	Standard Units	Grab[7]	1/Week	[1]
Aluminum, Total Recoverable	µg/L	24-hr Composite[2]	1/Month	[1,6]
Arsenic	µg/L	24-hr Composite[2]	1/Month	[1,3]
Nitrate (as N)	mg/L	Grab[7]	1/Month	[1]
Hardness (as $CaCO_3$)	mg/L	24-hr Composite[2]	1/Month	[1]
Copper, Total Recoverable	µg/L	24-hr Composite[2]	1/Month	[1,3]
Total Trihalomethanes	µg/L	24-hr Composite[2]	1/Month	[1,3]
Dibromochloromethane	µg/L	Grab[7]	1/Month	[1,3]
Dichlorobromomethane	µg/L	Grab[7]	1/Month	[1,3]
Cadmium, Total Recoverable	µg/L	24-hr Composite[2]	1/Quarter	[1,3]
Alpha BHC	µg/L	24-hr Composite[2]	1/Quarter	[1,3]
4,4'-DDE	µg/L	24-hr Composite[2]	1/Quarter	[1,3]
Alpha Endosulfan	µg/L	24-hr Composite[2]	1/Quarter	[1,3]
Endrin Aldelhyde	µg/L	24-hr Composite[2]	1/Quarter	[1,3]
Iron	µg/L	24-hr Composite[2]	1/Quarter	[1]
Manganese	µg/L	24-hr Composite[2]	1/Quarter	[1]
Total Dissolved Solids	mg/L	24-hr Composite[2]	1/Quarter[9]	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Mercury, Total Recoverable	µg/L	Grab[7]	1/Quarter	[9]
Mercury, Methyl	µg/L	Grab[7]	1/Quarter	[9]
Standard Minerals, Priority Pollutant, and Other Constituents of Concern **(See Section X.D.5. below)**	µg/L	Grab[7]	Quarterly during 3rd or 4th year of permit term	[1,3]
Whole Effluent Toxicity **(see Section V. below)**	--	--	--	--

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; where no methods are specified for a given pollutant, method shall be approved by the Central Valley Water Board or the State Water Board.

[2] 24-hour flow proportioned composite.

[3] 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.

[4] Concurrent with whole effluent toxicity monitoring.

[5] pH and temperature shall be recorded at the time of ammonia sample collection.

[6] Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

[7] Grab samples shall <u>not</u> be collected at the same time each day to get a complete representation of variations in the effluent.

[8] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L. When effluent disinfection by chlorine is replaced by UV disinfection with the new Facility, total residual chlorine monitoring is required when the Facility uses chlorine for maintenance purposes and monitoring can be achieved by daily grab samples. Whenever chlorine is scheduled to be used for maintenance of the new Facility, the Discharger shall monitor chlorine residual one week prior to use and one week after the end of use. If chlorine is needed for an unforseen operational or maintenace event, chlorine residual shall be monitored beginning the first day of use until one day after the end of use of chlorine.

[9] Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/l for methylmercury and 0.2 ng/l for total mercury.

[10] When the new Facility is completed, monitoring for turbidity and pH shall be conducted according to Section IV.B. of the Monitoring and Reporting Program. Upon initiation of operation of the new Facility, the Discharger shall indicate in the SMR that the monitoring location has changed.

B. Monitoring Location EFF-002

1. The Discharger shall monitor tertiary filtered effluent at EFF-002 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-4. Effluent Monitoring for EFF-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Turbidity	NTU	Meter	Continuous	[1]
pH	Standard Units	Grab[2]	1/Week	[1]

[1] Parameters shall be analyzed using the analytical methods described in 40 CFR Part 136; where no methods are specified for a given parameter, method shall be approved by the Central Valley Water Board or the State Water Board.

[2] Grab samples shall not be collected at the same time each day to get a complete representation of variations in the effluent.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform quarterly acute toxicity testing, concurrent with effluent ammonia sampling.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (Pimephales promelas).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer. In lieu of performing a separate acute bioassay, the Discharger may report the 96-hour percent survival of the fathead minnow species with the results from the chronic toxicity test procedure for determination of compliance with acute toxicity requirements. The results for acute and chronic testing must be reported separately.

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

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

1. *Monitoring Frequency –* The Discharger shall perform quarterly three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in this Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   - The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – For regular and accelerated chronic toxicity testing it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent. If toxicity is found in any regular effluent test, the Discharger must immediately retest using the dilution series identified in Table E-5, below. For TRE monitoring, the chronic toxicity testing shall be performed using the full dilution series identified in Table E-5, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

Table E-5. Chronic Toxicity Testing Dilution Series

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

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

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

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

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board within 30 days following completion of the test, and shall contain, at minimum:

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

   b. The statistical methods used to calculate endpoints;

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

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

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

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

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

3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan.

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

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

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

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

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger currently discharges to Reclamation District 777 Lateral Drain No. 1 as the receiving water; however, the new tertiary treatment facility proposes to utilize a Reclamation District 777 Lateral Drain No. 2 as the receiving water. For either receiving water, the monitoring requirements for RSW-001 and RSW-002 apply. The Discharger shall monitor the receiving water at RSW-001 or RSW-002 as follows:

Table E-6. Receiving Water Monitoring Requirements for RSW-001 and RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L[1] % saturation[1]	Grab[2]	1/Week[3]	[4]
pH	standard units	Grab[2]	1/Week[3]	[4]
Turbidity	NTU	Grab[2]	1/Week[3]	[4]
Temperature	°F (or °C)	Grab[2]	1/Week[3]	[4]
Electrical Conductivity @ 25°C	µmhos/cm	Grab[2]	1/Week[3]	[4]
Hardness (as $CaCO_3$)	mg/L	Grab[2]	1/Month[3]	[4]
Total Dissolved Solids	mg/L	Grab[2]	1/Quarter[3]	[4]
Standard Minerals, Priority Pollutant, and Other Constituents of Concern **(See Section X.D.5. below)**	µg/L	Grab[2]	Quarterly during 3rd or 4th year of permit term	[4]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] Report both saturation concentration and percent saturation.

[2] Grab samples shall not be collected at the same time each day to get a complete representation of variations in the effluent. If there is no flow in the receiving water (RSW-001 or RSW-002, whichever is applicable) at time of sampling, no sample is required; however all reporting requirements for RSW-001 or RSW-002 still apply and reporting no- flow conditions is required. Flow is a downstream movement of water in sufficient volume to grab a reliable sample. Any receiving water limitation dependent upon available flow in the receiving water shall not be considered in violation, if no flow is available for sampling.

[3] Monitoring must be concurrent with effluent discharge monitoring.

[4] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; where no methods are specified for a given pollutant, method shall be approved by the Central Valley Water Board or the State Water Board.

B. Groundwater Monitoring – NOT APPLICABLE

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the metals listed in Title 22.

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

c. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and 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 sludge are provided in USEPA publications titled *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* and *Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*. Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available.

B. Pond/Lagoon Monitoring

1. Monitoring Location PLG-001

a. The Discharger shall monitor the wastewater impounded in the existing secondary facility's pond(s)/lagoon(s) at PLG-001 as follows. When the pond(s)/lagoons(s) are not in use, the monthly self-monitoring report shall so state.

Table E-7. Pond/Lagoon Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Freeboard	feet[1]	Grab	Weekly[3]
Dissolved Oxygen[2]	mg/L	Grab	Weekly[3]
Odors	--	--	Weekly[3]
pH[2]	Standard Units	Grab	Weekly[3]
Electrical Conductivity @ 25ºC[2]	µmhos/cm	Grab	Weekly[3]

[1] To be measured vertically to the lowest point of overflow.
[2] A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm method, and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the WWTP.
[3] Sampling is not required when the depth of water covering the entire basin is less than one foot.

C. Equalization Basin and Emergency Storage Basin

1. Monitoring Locations PND-001 and PND-002

a. The Discharger shall monitor the wastewater impounded in the Facility equalization basin at PND-001 and the emergency storage basin at PND-002 as follows. A sampling station shall be established where a representative sample of the wastewater in the basins can be obtained. Monitoring is required only when the depth of water covering the entire basin is more than one foot; however, the monthly self-monitoring report shall so state.

b. The Discharger shall keep a log related to the use of each basin. In particular the Discharger shall record the following when any type of wastewater is directed to the basins;

i. The date(s) when the wastewater is directed to the basin;

ii. The type(s) of wastewater (e.g., untreated due to plant upset, tertiary treated) directed to the basin;

iii. The total volume of wastewater directed to each basin;

iv. The duration of time wastewater is collected in the basin; prior to redirection back to the wastewater treatment plant; and

v. The date when all wastewater in the basin has been redirected to the wastewater treatment plant.

vi. The freeboard available in the basin.

c. The basin logs shall be submitted with the monthly self-monitoring reports required in Section X.B. of the Monitoring and Reporting Program (Attachment E).

D. Ultraviolet Light (UV) Disinfection System

1. Monitoring Location UVS-001

The Discharger shall monitor the UV disinfection system at UVS-001 when the system is operational, as follows:

Table E-8. Ultraviolet Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow rate	MGD	Meter	Continuous
Turbidity[1]	NTU	Meter	Continuous
Number of UV banks in operation	Number	Meter	Continuous
UV Transmittance[3,4]	Percent (%)	Meter	Continuous
UV Power Setting	Percent (%)	Meter	Continuous
UV Dose[2]	mJ/cm^2	Calculated	Continuous

[1] Report daily average and maximum turbidity. If the influent exceeds 10 NTU, collect a sample for total coliform at EFF-001 and report the duration of the turbidity exceedance.

[2] Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to the receiving water, report the duration associated with each incident.

[3] The Discharger shall report documented routine meter maintenance activities, including date, time of day, duration, in which the UV transmittance analyzer(s) is not in operation to record monitoring information

[4] The UV transmittance analyzer can be out of service for calibration no more than 2 hours. One UV transmittance sample shall be collected and analyzed. Grab sample results will then be entered into the UV control system as the value used for UV dose calculation.

E. 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-9. Municipal Water Supply Monitoring Requirements for SPL-001

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

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Standard Minerals[3]	mg/L	Grab	1/Year	[2]

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

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; where no methods are specified for a given pollutant, method shall be approved by the Central Valley Water Board or the State Water Board.

[3] Standard minerals shall include all major cations and anions 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.

5. **Calendar Year Annual Average Effluent Limits.** The Discharger shall report the calculated annual average monitoring results in the December SMR.

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 parameter 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. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements (e.g., effluent limitations and discharge specifications, receiving water limitations, special provisions, etc.). The highest daily maximum for the month and monthly and weekly averages shall be determined and recorded as needed to demonstrate compliance. In addition, the following shall be calculated and reported in the SMRs:

a. **Annual Average Limitations**. For constituents with effluent limitations specified as “annual average” (aluminum, electrical conductivity, iron, and manganese) the Discharger shall report the annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.

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

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

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

c. **Mercury**. The Discharger shall calculate and report effluent total annual mass loading of total mercury in the December SMR. The total annual mass loading shall be calculated as specified in Section VII.G. of the Limitations and Discharge Requirements.

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

e. **Average Dry Weather Flow**. The Discharger shall calculate and report the average dry weather flow for the Facility discharge in the December SMR. The average dry weather flow shall be calculated annually as specified in Section VII.C. of the Limitations and Discharge Requirements.

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

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

h. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e. of the Limitations and Discharge Requirements. If there is no flow at RSW-001 at time of sampling, no RSW-001 sample is required, however, all reporting requirements for RSW-001 still apply and reporting the lack of flow is required. Flow is a downstream movement of water in sufficient volume to grab a reliable sample. Any effluent limitaion dependant upon available flow in the receiving water shall not be considered in violation, if no flow is available for sampling.

i. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at RSW-001 and RSW-002. If there is no flow at RSW-001 at time of sampling, no RSW-001 sample is required, however, all reporting requirements for RSW-001 still apply and reporting the lack of flow is required. Flow is a downstream movement of water in sufficient volume to grab a reliable sample. Any effluent limitaion dependant upon available flow in the receiving water shall not be considered in violation, if no flow is available for sampling.

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

Table E-10. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
Daily	Permit effective date	All	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
3/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	First day of second calendar month following month of sampling

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
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	First day of second calendar month following the end of the monitoring period
1/Year	Permit effective date	1 January through 31 December	First day of February each year

5. **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.

6. **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).

7. **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.

8. 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
   NPDES Compliance and Enforcement Unit
   11020 Sun Center Dr., Suite #200
   Rancho Cordova, CA 95670-6114

9. Reports must clearly show when discharging to EFF-001 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, 15th 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-11. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Initial Investigative TRE Workplan (Section VI.C.a.i.)	**Within 90 days from the effective date of this Order**
Summary Report on EC Monitoring (Section VI.C.2.b.)	**Within 15 months following construction of the new tertiary facility**
Salinity/EC Site-Specific Study Workplan and Time Schedule (Section VI.C.2.b.)	If necessary, based on results of Summary Report on EC Monitoring (see above), **within 18 months following construction of the new tertiary facility**

Special Provision	Reporting Requirements
Salinity/EC Site-Specific Study (Section VI.C.2.b.)	If necessary, based on results of Summary Report on EC Monitoring (see above), **within 15 months following Executive Officer approval of Workplan and Time Schedule**
Salinity Evaluation and Minimization Plan (Section VI.C.3.a.)	**Within 14 months of the effective date of this Order, and annually thereafter on 30 June.**
Mercury Evaluation and Minimization Plan (Section VI.C.3.b.)	**Within 14 months of the effective date of this Order, and annually thereafter on 30 June**

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, and Pollution Prevention Plan required by Special Provisions VI.C.2 and VI.C.3 of this Order.

3. **Analytical Methods Report.** 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. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.

5. **Effluent and Receiving Water Characterization Report.** After the new tertiary treatment facility is operational, an effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth year of this permit term, the Discharger shall conduct quarterly monitoring of the effluent at EFF-001 and of the receiving water at RSW-001 concurrently for all priority pollutants and other constituents of concern as described in Attachment H. Dioxin and Furan sampling shall be performed only twice during the year, as described in Attachment H. The report shall be completed in conformance with the following schedule.

Task	Compliance Date
Submit Work Plan and Time Schedule	18 months from the adoption of this Order
Conduct Quarterly Sampling of All Priority Polutants and Constituents of Concern	During 3rd or 4th year of permit term

Submit Final Report	Six months following completion of monitoring events

6. **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	**5A510100001**
Discharger	**City of Live Oak**
Name of Facility	**City of Live Oak Wastewater Treatment Plant**
Facility Address	**3450 Treatment Road**
	Live Oak, CA 95953
	Sutter County
Facility Contact, Title and Phone	**Mr. Jim Goodwin, City Manager, 530.695.2112**
Authorized Person to Sign and Submit Reports	**City Manager or Chief Plant Operator 530.695.2112**
Mailing Address	**9955 Live Oak Boulevard Live Oak, CA 95953**
Billing Address	**Same as Mailing**
Type of Facility	**Publicly Owned Treatment Works**
Major or Minor Facility	**Major**
Threat to Water Quality	**1**
Complexity	**B**
Pretreatment Program	**N**
Reclamation Requirements	**N**
Facility Permitted Flow	**1.4 million gallons per day (MGD) average dry weather flow (ADWF)**
Facility Design Flow	**1.4 MGD**
Watershed	**Sacramento**
Receiving Water	**Reclamation District 777 Lateral Drain No. 1 and Reclamation District 777 Lateral Drain No. 2 (planned for new facility)**
Receiving Water Type	**Inland Surface Water**

A. The City of Live Oak (hereinafter Discharger) is the owner and operator of the Wastewater Treatment Plant (hereinafter Facility), a Publicly Owned Treatment Works.

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 treated wastewater to Reclamation District 777 Lateral Drain No. 1 (a constructed agricultural drain), a water of the United States, and a tributary to the East Interceptor Canal, then Wadsworth Canal, and then the Sutter Bypass. The discharge is currently regulated by Order No. R5-2004-0096 which was adopted on 9 July 2004 and expired on 9 July 2009, and by Cease and Desist Order No. R5-2009-0012-01 adopted on 24 April 2009. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 30 September 2008.

II. FACILITY DESCRIPTION

The Discharger owns and operates the Publicly Owned Treatment Works. The Discharger provides sewerage service for the City of Live Oak and serves a population of approximately 8,000. The design ADWF capacity of the Facility is 1.4 MGD. The Facility currently provides secondary treatment of domestic wastewater from within the City limits. The collection system consists of 25 miles of sewer lines and 6 pump stations. The City's potable water is supplied by 5 City-owned groundwater wells. The current Facility consists of unlined aerated lagoons, unlined oxidation ponds, disinfection by chlorine, and dechlorination.

Cease and Desist Order No. R5-2009-0012-01 includes interim effluent limits and a time schedule for the Discharger to meet the effluent limitations of the existing Order by 30 September 2012. The Discharger began construction of major tertiary treatment upgrades to the Facility in September 2009. The new tertiary treatment plant will include a lined equalization basin, an unlined emergency storage basin, and a stormwater detention basin. The treatment system will include nitrification and will consist of an odor control system at the headworks, secondary feed pump station, selector basin, two oxidation ditches, two secondary clarifiers, cloth media filters, and ultraviolet disinfection system. Solids handling facilities will consist of storage basins and solar drying beds. Wastewater will be discharged from Discharge Point No. 001 and the new facility plans to use Reclamation District 777 Lateral Drain No. 2 (a constructed agricultural drain) as the receiving water (see section B below). Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the new Facility.

A. Description of Wastewater and Biosolids Treatment or Controls

The Facility is currently permitted to discharge 1.4 MGD design average dry weather flow from the secondary treatment plant. Current average dry weather flow is 0.72 MGD and peak wet weather flow is 3.2 MGD.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 7, T16N, R3E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001. Currently the receiving water is the Reclamation District 777 Lateral Drain No. 1; however, the new tertiary treatment facility may relocate Discharge Point No. 001 to Reclamation District 777 Lateral Drain No. 2 as the receiving water. Both receiving waters are waters of the United States and a tributary to the Sutter Bypass.

3. After the effluent discharges to Lateral Drain No. 1 or Lateral Drain No. 2, the receiving water flows into the East Interceptor Canal and then Wadsworth Canal, which is tributary to the Sutter Bypass.

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

Order No. R5-2004-0096 contained effluent discharge limits for the disinfected secondary treatment facility and a time schedule to meet Title 22 tertiary treatment requirements by April 1, 2009. The Discharger could not meet the 1 April 2009, deadline, therefore, Cease and Desist Order No. R5-2009-0012 was adopted on 5 February 2009, and subsequently amended on 24 April 2009, by Cease and Desist Order No. R5-2009-0012-01. Order No. R5-2009-0012-01 included a new time schedule to meet requirements of Order No. R5-2004-0096 including, aluminum, ammonia, BOD, copper, cyanide, diazinon, total coliform, TSS, turbidity, and BOD and TSS removal efficiency, by 30 September 2012. Order No. R5-2009-0012 also contained interim effluent limitations for aluminum, ammonia, copper, cyanide, and turbidity. Table F-2 includes the effluent limitations in Order No. R5-2004-0096 extended by the time schedule in Order No. R5-2009-0012-01. Table F-3 includes the interim effluent limitations contained in Order No. R5-2009-0012-01.

Effluent limitations and Discharge Specifications contained in Order No. R5-2004-0096 and Cease and Desist Order No. R5-2009-0012-01 for discharges from Discharge Point No. 001, and representative monitoring data from the term of Order No. R5-2004-0096, are as follows:

Table F-2. Order No. R5-2004-0096 Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation Order No. R5-2004-0096			Monitoring Data (From July 2005 To June2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD[1]	mg/L	10[4]	15[4]	20[4]	--	--	32
	lbs/day[5]	120	180	230	--	--	170
BOD[1] Minimum Monthly Removal	%	85	--	--	--	--	20

Parameter	Units	Effluent Limitation Order No. R5-2004-0096			Monitoring Data (From July 2005 To June2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
TSS	mg/L	10[4]	15[4]	20[4]	--	--	88
	lbs/day[5]	120	180	230	--	--	460
TSS Minimum Monthly Removal	%	85	--	--	--	--	60
Total Coliform Organisms	MPN/ 100 mL	--	2.2[2]	23[9]	--	--	1600
Settleable Solids	mL/L-hr	0.1	--	0.2	--	--	0.0
Organochlorine Pesticides	µg/L	--	--	ND[8]	--	--	0.02
Cadmium (total recoverable)	µg/L	calculated[4]	--	calculated[4]	--	--	0.15
	lbs/day	calculated[7]	--	calculated[7]	--	--	0.00079
Chlorine, Total Residual	mg/L	--	0.01	0.02	--	--	0.02
	lbs/day[5]	--	0.13	0.22	--	--	0.11
Diazinon	µg/L	0.04	--	0.08	--	--	ND
	lbs/day[5]	0.0005	--	0.001	--	--	NA
Copper (total recoverable)	µg/L	calculated[4]	--	calculated[4]	--	--	11
	lbs/day	calculated[7]	--	calculated[7]	--	--	0.058
Cyanide (total recoverable)	µg/L	4.3	--	8.5	--	--	ND
	lbs/day[5]	0.050	--	0.10	--	--	NA
pH	Standard Units	--	--	Minimum 6.5 Maximum 8.5	--	--	Min 6.3 Max 8.5
Average Dry Weather Flow	MGD	--	--	1.4	--	--	0.72
Acute Toxicity	%	1-sample not to fall below 70% and 3-sample median not to fall below 90% survival.			--	--	70
Aluminum[3]	µg/L	71[4]	--	140[4]	--	--	530
	lbs/day[5]	0.83	--	1.7	--	--	--
Ammonia, Total (as N)	mg/L	calculated	--	calculated	--	--	17.1
	lbs/day	calculated[6]	--	calculated[6]	--	--	--
Turbidity[10]	NTU	--	--	2	--	--	120
Tertiary Treatment[11]	--	--	--	--	--	--	--

Parameter	Units	Effluent Limitation Order No. R5-2004-0096			Monitoring Data (From July 2005 To June2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

[1] 5-day, 20ºC biochemical oxygen demand.
[2] 7-day median.
[3] Acid soluable or total.
[4] To be ascertained by 24-hour composite.
[5] Based on Average Dry Weather Flow of 1.4 MGD.
[6] The mass limit for ammonia shall be equal to the calculated concentration limit multiplied by the design flow of 1.4 MGD and the unit conversion factor of 8.345. Also includes a calculated instantaneous maximum limit.
[7] The mass limit shall be equal to the calculated concentration limit multiplied by the design flow of 1.4 MGD and the unit conversion factor of 8.345 and divided by 1000 µg/L per mg/L.
[8] The Non-Detectable limitation applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques with the lowest possible detectable level for organochlorine pesticides with maximum acceptable detection level of 0.05 µg/L.
[9] Not to be exceeded more than once in any 30-day period.
[10] The turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period. At no time shall the turbidity exceed 10 NTU.
[11] Wastewater shall be oxidized, coagulated, filtered, and disinfected, or equivalent treatment.

Table F-3. Interim Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation Cease and Desist Order No. R5-2009-0012-01			Monitoring Data (From August 2005 To June 2009)		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly Discharge	Average Weekly Discharge	Daily Discharge
Aluminum	µg/L	--	--	7300	--	--	530
Ammonia, Total (as N)	mg/L	--	--	23.7	--	--	17.1
Copper	µg/L	--	--	22	--	--	11
Cyanide	µg/L	--	--	16	--	--	ND
Turbidity	NTU	--	--	102	--	--	120

D. Compliance Summary

Administrative Civil Liability Complaint R5-2008-0605, issued 10 November 2008.

Administrative Civil Liability Order R5-2009-0587, issued 9 December 2009.

E. Planned Changes

The existing Facility consists of aeration lagoons, oxidation ponds, disinfection by chlorine, and dechlorination. The Facility is being improved to provide tertiary level treatment with nitrification. The improvement project is under construction and is scheduled to be completed in September 2012. The new Facility will not provide an increase in design capacity and is designed to treat the existing permitted 1.4 MGD average dry weather flow. The new Facility design capacity for peak day, peak week, peak month, and annual average flows are 4.27 MGD, 3.80 MGD, 3.33 MGD, and 1.73 MGD, respectively. The new treatment system will consist of an odor control system at the headworks, a secondary feed pump station, selector basin and splitter box, two oxidation ditches, two secondary clarifiers, cloth media filters, and an ultraviolet light disinfection system. Solids handling facilities will include storage basins and solar drying beds.

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 September 2009), 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.J of this Order.

4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 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 CWC, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

   The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to CWC section 13263.6(a).

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

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 plants are applicable industries under the storm water program and are obligated to comply with the federal regulations.

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 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 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 Wadsworth Canal, which the Reclamation District 777 Lateral Drain No. 1 and Lateral Drain No. 2 are tributary to, includes diazinon.

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.

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 IV.C.3. of this Fact Sheet.

E. Other Plans, Polices and Regulations

1. Title 27, California Code of Regulations (CCR), section 20005 *et seq*. (hereafter Title 27). Title 27 requirements apply to land disposal activities, and establish minimum standards governing the water quality aspects of waste discharges to land for treatment, storage, or disposal. Section 20090 of Title 27 includes exemptions to the requirements.

a. Existing Facility. The treatment system currently consists of aeration lagoons, oxidation ponds, chlorine disinfection, and dechlorination. The sewage

throughout the treatment system does not have to be managed as hazardous waste. The lagoons and ponds are unlined and therefore, some percolation to groundwater is expected. However, the lagoon and ponds are exempt from the requirements of Title 27 CCR pursuant to section 20090(a) since the lagoons and ponds are components within the treatment system.

b. **New Facility.** The new tertiary treatment system will include concrete structures such as an oxidation ditch and two secondary clarifiers, a lined equalization basin, a stormwater detention basin, and an emergency storage basin. The only component of the new Facility with the potential to percolate to the underlying groundwater is the emergency storage basin. The emergency storage basin is used to hold wastewater bypassed from the treatment system in case of an emergency. The emergency storage basin is not used as a discharge basin and the contents will be pumped back into the treatment process when feasible. The new Facility will be exempt from the requirements of Title 27 CCR pursuant to 20090(a) because the emergency storage basin is an essential component within the treatment system.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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

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

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

quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-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. 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.

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 (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. However, as described in section IV.C.3, this Order requires water quality-based effluent limitations (WQBELs) more stringent than the applicable technology-based effluent limitations which are based on tertiary treatment, which is necessary to protect the beneficial uses of the receiving stream. 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. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. **Flow.** The Facility was designed to provide a tertiary level of treatment for up to a design flow of 1.4 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 1.4 MGD.

c. **pH.** The secondary treatment regulations at 40 CFR Part 133 also require that pH be maintained between 6.0 and 9.0 standard units (SU).

Summary of Secondary Level Effluent Limitations
Discharge Point No. 001

Table F-4. Summary of Secondary Level Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	--	1.4[1]	--	--
BOD_5 @ 20°C[2]	mg/L	30	45	60	--	--
	lbs/day[3]	350	525	700	--	--
	% Removal	85	--	--		
Total Suspended Solids[2]	mg/L	30	45	60	--	--
	lbs/day[3]	350	525	700	--	--
pH	SU	--	--	--	6.0[4]	9.0[4]

[1] Average dry weather flow.
[2] The average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.
[3] Based upon an average dry weather treatment design flow of 1.4 MGD.
[4] More stringent water quality-based effluent limitations have been applied for pH in this Order.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

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

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and

criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

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

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

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and 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. R5-2004-0096 which initially established tertiary 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 which consist of modified agricultural drains upstream of the Sutter Bypass, 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.** The receiving water is currently the Reclamation District 777 Lateral Drain No. 1 and may change to Lateral Drain No. 2 with the new tertiary treatment facility, which are waters of the United States and tributary to the Sutter Bypass within the Sacramento River Basin. Lateral Drain No. 1 and Lateral Drain No. 2 were apparently constructed prior to 1917 to capture and transport agricultural drain water. Lateral Drain No. 1 was deepened to three or four feet from the original depth of one foot in 1939. Since 1939 there have been limited improvements to the drains other than maintenance. The drains carry only agricultural and urban stormwater runoff and no surface water streams, creeks, sloughs, or other natural waterway discharges into the drains. Consequently, upstream Lateral Drain No. 1 flows are during winter and irrigation seasons, and the downstream flows are effluent dominant during most of the year. Lateral Drain No. 1 flows south along the western edge of the WWTP and continues until it enters the East Interceptor Canal. Lateral Drain No. 2 flows along the southeast edge of the WWTP until it enters Lateral Drain No. 1 near the southern tip of the WWTP.

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 Reclamation District 777 Lateral Drain No. 1 or Lateral Drain No. 2, but does identify present and potential uses for the Sutter Bypass, to which these waters are tributary. Thus, beneficial uses applicable to Reclamation District 777 Lateral Drain No. 1 and Lateral Drain No. 2 are as follows:

Table F-5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Reclamation District 777 Lateral Drain No. 1 and Reclamation District 777 Lateral Drain No. 2 (planned for new facility)	Existing: Municipal and domestic supply (MUN); Agricultural irrigation (AGR); Water contact recreation (REC-1); Warm freshwater habitat (WARM); Cold freshwater migration (MGR); Spawning, reproduction, and/or early development (SPWN); Wildlife habitat (WILD). Intermittent: Ground water recharge (GWR); Freshwater replenishment (FRSH).

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 June 2006 through June 2009, which includes effluent and ambient background data submitted in SMRs and the Report of Waste Discharge (ROWD). Additional

data outside of this range were also analyzed where there were inadequate data to perform an analysis. When there were not sufficient data (e.g., not required in MRP) effluent CTR data from January 2003, February 2003, October 2003, and March 2005 to August 2005 were used. Order No. R5-2004-0096 required receiving water monitoring only for dissolved oxygen, pH, turbidity, temperature, EC, radionuclides, and hardness. CTR monitoring was not required. Consequently, there was insufficient receiving water CTR data from the last 3 years, so receiving water data from March 2002 and July 2002 were used for the CTR constituents.

Order No. R5-2004-0096 includes effluent limits for cadmium, cyanide, and copper due to elevated concentrations of these constituents in the receiving water. Since no other receiving water data is available for these constituents, the 2002 data is being used for the RPA in this permit. The 2002 receiving water data results in reasonable potential for cadmium, and copper (i.e., B > C) for this permit. The effluent data showed detections for these constituents, but did not exceed the criteria. This Order includes receiving water sampling in order to have sufficient and better representative data to perform the reasonable potential analysis for the next permit.

c. **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 SIP[1], the CTR[2] 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.).

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

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

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 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.

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

Once a discharge is made to a receiving water, the hardness downstream of the discharge will be altered and the applicable water quality criteria will alter

accordingly. A 2006 Study[1] developed procedures for calculating the effluent concentration allowance (ECA)[2] 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 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 water quality-based effluent limitations.

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

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

Where:

H = hardness (as $CaCO_3$)
WER = water-effect ratio
m, b = metal- and criterion-specific constants

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

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

$$\text{ECA} = C \quad (\text{when } C \leq B)^{3} \qquad \text{(Equation 2)}$$

Where

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

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave

[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.

[2] 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

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

Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. 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".

ECA for 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 CTR criteria associated with its own hardness condition, it is not possible to cause or contribute to a violation of water quality criteria that are applicable once the effluent and receiving water are mixed (either fully or partially). Therefore, based on any observed ambient background hardness, even when there is no receiving water assimilative capacity for metals (i.e., the ambient background metals concentrations are at or above their respective CTR criterion) and the minimum effluent hardness, the ECA calculated using Equation 1 with a downstream ambient 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 effluent and receiving water as the effluent mixes with the receiving water). The conclusions of the study do not change whether the receiving water initially exhibited a higher or lower hardness value or the degree of dilution within the receiving water.

In some instances, the receiving water may already contain concentrations of concave down metals that exceed water quality criteria associated with the hardness condition previous to the discharge. The 2006 study procedures remain applicable under these conditions. The discharge can not cause or contribute to a violation of water quality criteria/objectives in the receiving water. Although metals concentrations downstream of the discharge exceed CTR criteria, the cause of the exceedance is not due to the discharge, it is due to the elevated metals concentrations upstream of the discharge. Implementing the procedures of the 2006 study does not result in an increase in toxicity downstream of the discharge, and in fact reduces the amount of toxicity already present in the receiving water. This is demonstrated in the example below for copper (see Table F-7).

The effluent hardness ranged from 220 mg/L to 330 mg/L (as $CaCO_3$), based on 35 samples from June 2006 to June 2009. The receiving water hardness varied from 30 mg/L to 520 mg/L (as $CaCO_3$), based on 35 samples from June 2006 to June 2009. Using a hardness of 220 mg/L (as $CaCO_3$) to calculate the ECA for copper, chronic cadmium, chromium III, nickel, and zinc will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using nickel shown in Table F-6, below. This example assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water is never greater than the lowest observed receiving water hardness (i.e., 30 mg/L as $CaCO_3$)
- Upstream receiving water nickel concentration is always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the receiving water never exceeded the CTR criteria for chromium III, nickel, and zinc. For copper and cadmium, this condition has at times not been met in the receiving water upstream of the discharge. Further discussion regarding copper and cadmium is provided below.

Using these reasonable worst-case conditions, the discharge can be mixed with the receiving water and a resulting downstream mixed hardness (or metals concentration) can be calculated for all discharge and mixing conditions (e.g., 0% effluent to 100% effluent) based on a simple mass balance as shown in Equation 3, below. By evaluating all discharge conditions the reasonable worst-case downstream hardness can be determined for adjusting the CTR criteria.

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

Where:

C_{MIX} = Mixed concentration (e.g. metals or hardness)
C_{RW} = Upstream receiving water concentration
C_{Eff} = Effluent concentration
EF = Effluent Fraction

As demonstrated in Table F-6, using a minimum effluent hardness of 220 mg/L (as $CaCO_3$) to calculate the ECA for chromium III, nickel, and zinc ensures the discharge is protective under all discharge and mixing conditions. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. 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 chromium III, nickel, and zinc has been calculated using Equation 1 with a hardness of 220 mg/L (as $CaCO_3$).

Table F-6: Chronic Nickel ECA Evaluation

	Minimum Observed Effluent Hardness	**220 mg/L (as $CaCO_3$)**
	Minimum Observed Upstream Receiving Water Hardness	**30 mg/L (as $CaCO_3$)**
	Maximum Upstream Receiving Water Nickel Concentration	**19 µg/L[1]**
	Nickel $ECA_{chronic}$[2]	**102 µg/L**
Effluent	**Mixed Downstream Ambient Concentration**	

Fraction	Hardness[3] (mg/L) (as $CaCO_3$)	CTR Criteria[4] (µg/L)	Nickel[5] (µg/L)
1%	31.9	19.8	19.7
5%	39.5	23.8	23.0
15%	58.5	33.1	31.3
25%	77.5	42.0	39.5
50%	125	63.0	60.2
75%	172.5	82.7	80.9
100%	220	101.6	101.6

1 Maximum upstream receiving water nickel concentration calculated using Equation 1 for chronic criterion at a hardness of 30 mg/L (as $CaCO_3$).

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 220 mg/L (as $CaCO_3$).

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.

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

5 Mixed downstream ambient nickel concentration is the mixture of the receiving water and effluent nickel concentrations at the applicable effluent fraction using Equation 3.

As discussed above, the receiving water at times exceeds the CTR criteria for copper and chronic cadmium. The 2006 study procedures remain applicable under these conditions. Using these procedures the discharge does not cause or contribute to a violation of the water quality criteria. Any exceedances of the CTR criteria are due to the elevated metal concentrations in the receiving water upstream of the discharge. For clarity, the impact of the copper discharge on the receiving water which already contains copper in excess of water quality criteria is illustrated in Table F-7.

As reported in Table F-7, prior to the discharge the copper has been observed to exceed water quality criteria by up to 86%. When the receiving water contains some fraction of effluent, the percent exceedance is reduced. The greater the amount of effluent in the receiving water, the lower the percent exceedance, until a fully compliant state is achieved when the effluent constitutes the entire flow. The effluent limitation associated with copper, therefore, was sufficient to assure that the discharge never causes or contributes to a violation of a water quality criterion, and in fact reduces the amount of toxicity already present in the receiving water. The results for chronic cadmium are similar.

Table F-7: Chronic Copper ECA Evaluation

Minimum Observed Effluent Hardness	**220 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**30 mg/L (as $CaCO_3$)**
Maximum Observed Upstream Receiving Water Copper Concentration	**6.2 µg/L[1]**
Copper $ECA_{chronic}$[2]	**18.3 µg/L**

Effluent Fraction	Mixed Downstream Ambient Concentration			
	Hardness[3] (mg/L) (as $CaCO_3$)	CTR Criteria[4] (µg/L)	Copper[5] (µg/L)	Percent exceedance
0%	30	3.3	6.2	86%
1%	31.9	3.5	6.32	80%
5%	39.5	4.2	6.81	61%
15%	58.5	5.9	8.02	36%
25%	77.5	7.5	9.23	23%
50%	125	11.3	12.3	9%
75%	172.5	14.9	15.3	3%
100%	220	18.3	18.3	0%

1 Maximum observed upstream receiving water copper concentration.

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 220 mg/L (as $CaCO_3$).

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.

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

5 Mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction using Equation 3.

ECA for Concave Up Metals – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the 2006 Study demonstrates that due to a different relationship between hardness and the metals criteria, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may be out of compliance. Therefore, the 2006 Study provides a mathematical approach to calculate the ECA to ensure that any mixture of effluent and receiving water is in compliance with the CTR criteria (see Equation 4, below). The ECA, as calculated using Equation 4, is based on the reasonable worst-case 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 observed effluent hardness. The reasonable worst-case ambient background hardness depends on whether the effluent hardness is greater than or less than the upstream receiving water hardness. There are circumstances where the conservative ambient background hardness assumption is to assume that the upstream receiving water is at the highest observed hardness concentration. The conservative upstream receiving water condition as used in the Equation 4 below is defined by the term H_{rw}.

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

Where:

m, b = criterion specific constants (from CTR)

H_e = minimum observed effluent hardness

H_{rw} = minimum observed upstream receiving water hardness when the minimum effluent hardness is always greater than observed upstream receiving water hardness ($H_{rw} < H_e$)

-or-

maximum observed upstream receiving water hardness when the minimum effluent hardness is always less than observed upstream receiving water hardness ($H_{rw} > H_e$)[1]

These procedures are applicable to calculate the CTR criteria for the Concave Up Metals lead and silver. However, the receiving water has been shown to exceed the CTR criteria for acute cadmium, based on paired hardness and metals receiving water data from March 2002 and July 2002. This is not consistent with the assumptions of the 2006 Study, therefore, these procedures for calculating the ECA for the Concave Up Metals are not applicable for acute cadmium. The procedure for selecting the appropriate hardness for acute cadmium is discussed below.

A similar example as was done for the Concave Down Metals is shown for lead, a Concave Up Metal, in Tables F-7 and F-8, below. As previously mentioned, the minimum effluent hardness is 220 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 30 mg/L to 520 mg/L (as $CaCO_3$). In this case, the minimum effluent concentration is within the range of observed upstream receiving water hardness concentrations. Therefore, Equation 4 was used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness[2]. Using Equation 4, the lowest ECA results from using the maximum upstream receiving water hardness, the minimum effluent hardness, and assuming no receiving water capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion). However, based on paired ambient hardness and metals data, the receiving water exceeded the CTR criteria for acute cadmium. Therefore, a different hardness must be used for acute cadmium to ensure protective WQBELs are calculated, as discussed below.

Using Equation 4 to calculate the ECA for lead and acute silver will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in Tables F-7 and F-8, for chronic lead. In this

[1] When the minimum effluent hardness falls within the range of observed receiving water hardness concentrations, Equation 3 is used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. The minimum of the two calculated ECAs represents the ECA that ensures any mixture of effluent and receiving water is in compliance with the CTR criteria.

[2] Although the maximum upstream receiving water hardness is 550 mg/L (as $CaCO_3$) a maximum hardness of 400 mg/L (as $CaCO_3$) was used in this evaluation, because the CTR equations are not applicable for a hardness greater than 400 mg/L.

example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Use of a lower ECA (e.g., calculated based solely on the lowest upstream receiving water hardness) is also protective, but would lead to unreasonably stringent effluent limits considering the known conditions. Therefore, Equation 4 has been used to calculate the ECA for lead and acute silver in this Order. For acute cadmium, the minimum observed upstream receiving water hardness of 30 mg/L (as $CaCO_3$) is required to calculate the ECA to ensure the discharge is protective.

Table F-8: Chronic Lead ECA Evaluation

Minimum Observed Effluent Hardness			**220 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness			**30 mg/L (as $CaCO_3$)**
Maximum Upstream Receiving Water Lead Concentration			**0.69 µg/L[1]**
Lead $ECA_{chronic}$[2]			**6.2 µg/L**
Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**
1%	31.9	0.7	0.7
5%	39.5	1.0	1.0
15%	58.5	1.6	1.5
25%	77.5	2.3	2.1
50%	125.0	4.2	3.5
75%	172.5	6.4	4.8
100%	220.0	8.7	6.2

1 Minimum upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 30 mg/L (as $CaCO_3$).

2 ECA calculated using Equation 3 for chronic criteria.

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

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

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

Table F-9: Chronic Lead ECA Evaluation

Minimum Observed Effluent Hardness			**220 mg/L (as $CaCO_3$)**
Maximum Observed Upstream Receiving Water Hardness			**400 mg/L (as $CaCO_3$)**
Maximum Upstream Receiving Water Lead Concentration			**19 µg/L[1]**
Lead $ECA_{chronic}$[2]			**8.0 µg/L**
Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**
1%	398.2	18.5	18.5
5%	391.0	17.1	18.0
15%	373.0	17.0	17.0
25%	355.0	16.0	15.9
50%	310.0	13.4	13.3
75%	265.0	11.0	10.6
100%	220.0	8.7	7.9

1 Maximum upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 400 mg/L (as $CaCO_3$).

2 ECA calculated using Equation 3 for chronic criteria.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.

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

5 Mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction using Equation 3.

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. When sufficient data were available, the RPA for each constituent was conducted based on effluent and receiving water data from June 2006 to June 2009. For CTR constituents, when effluent data were not available from June 2006 to June 2009, effluent CTR data from January 2003, February 2003, and March 2005 through August 2005 were used. Due to the lack of more recent

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

receiving water CTR data, data from March 2002 and July 2002 were used for receiving water CTR constituents.

b. **Constituents with Limited Data.** Reasonable potential cannot be determined for the following constituents because representative effluent data are limited and the Facility tertiary treatment upgrade will provide additional removal for constituents, or ambient background concentrations are not available. The Discharger is required to continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.

   i. **Electrical Conductivity.** The Discharger submitted a Salinity Report dated June 2006, which identified potential sources of salinity and indicated that the effluent EC of the Facility was at expected levels. This permit requires the Discharger to conduct a site-specific study to develop EC objectives that will protect water quality. An effluent limitation for EC is included in this permit until the site-specific study is completed, and based upon the results of the site-specific study, the final effluent limitation may be modified or additional salinity requirements may be added.

c. **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 may be established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

   i. **Diazinon.** Order No. R5-2004-0096 included effluent limitations and monthly monitoring requirements for diazinon and 31 samples from June 2006 through June 2009 were used for the RPA. Diazonon was not detected in all 31 samples and therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above non-CTR water quality criterion for diazinon (see Attachment G Reasonable Potential Analysis).

   ii. **Settleable Solids.** Order No. R5-2004-0096 requires that the effluent comply with a daily maximum effluent limitation of 0.2 ml/L hr and a monthly average effluent limit of 0.1 ml/L hr for settleable solids to implement the Basin Plan's narrative objectives for Settleable Material. Based on the RPA dataset, over 1100 daily samples from June 2006 through September 2009, Settleable Solids measured 0.1 ml/L only twice (two consecutive days) in February 2007 and was not detected (less than reporting levels of < 0.1 ml/L) in all the other effluent samples. Based on the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge no longer demonstrates reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative objective for Settleable Material, therefore, no effluent limit is included in this Order.

iii. **Cyanide.** Order No. R5-2004-0096 included effluent limitations and monthly monitoring requirements for cyanide, and 33 samples from June 2006 through June 2009 were used for the RPA. Cyanide was not detected in all 33 samples and therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above CTR water quality criterion for cyanide (see Attachment G Reasonable Potential Analysis).

iv. **Bis (2-ethylhexyl) phthalate.** The CTR includes a criterion of 1.8 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. CTR monitoring was performed in April 2005 and August 2005. The April 2005 sample revealed a detection that was not quantifiable, but was estimated at 0.7 µg/L, which is less than the CTR criterion of 1.8 µg/L. The August 2005 sample was non-detect. The upstream receiving water has not been sampled by the Discharger since 2002, at which time the two samples taken resulted in non-detects. Based on this data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above CTR water quality criterion for bis(2-ethylhexyl)phthalate (see Attachment G Reasonable Potential Analysis).

d. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, arsenic, cadmium, copper, dibromochloromethane, dichlorobromomethane, iron, manganese, nitrate, pathogens, persistent chlorinated hydrocarbon pesticides, pH, salinity, and total trihalomethane,. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Aluminum**

(a) WQO. USEPA developed National Recommended Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. The Secondary Maximum Contaminant Level - Consumer Acceptance Limit (MCL) for aluminum for the protection of the MUN beneficial use is 200 µg/L. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters. However, information contained in footnote L to the NAWQC Correction (1999) summary table for aluminum indicates that the chronic aquatic life criterion is based on studies conducted under specific receiving water conditions with a low pH (6.5 to 6.6 pH units) and low hardness (<10 mg/L as $CaCO_3$). Monitoring data demonstrates that these conditions are not similar to those in Reclamation District 777 Lateral Drain No. 1. The receiving water monitoring indicates

upstream hardness concentrations ranging from 72 to 546 mg/L as $CaCO_3$ and a pH that is greater than 7.0 standard units. Thus, it is unlikely that application of the chronic criterion of 87 µg/L is necessary to protect aquatic life in Reclamation District 777 Lateral Drain No. 1. For similar reasons, the Utah Department of Environmental Quality (Department) only applies the 87 µg/L chronic criterion for aluminum where the pH is less than 7.0 and the hardness is less than 50 mg/L as $CaCO_3$ in the receiving water after mixing. For conditions where the pH equals or exceeds 7.0 and the hardness is equal to or exceeds 50 mg/L as $CaCO_3$, the Department regulates aluminum based on the 750 µg/L acute criterion. USEPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg aluminum/L, when either total recoverable or dissolved is measured (Footnote L). As such, USEPA suggest the use of a water effects ratio (WER) might be appropriate for implementation of its recommended chronic criterion for aluminum to protect aquatic organisms.

Due to uncertainties with NAWQC for aluminum, in May 2006, the Arid West Water Quality Research Project produced its technical report, *Evaluation of the EPA Recalculation Procedure in the Arid West Technical Report*, to update NAWQC based on more recent data, and to recalculate USEPA's recommended NAWQC to reflect the resident species and water quality observed in arid West surface waters. Five effluent-dependent and ephemeral streams were studied during the research project for ambient water characteristics, and the aluminum criteria recalculation was based on this data and on taxa more representative of communities found in these streams. The Arid West research study found and the report states that "*speciation and/or complexation of aluminum is highly dependent on ambient water quality characteristics and ultimately determines the mechanism of toxicity. [Increased] Concentrations of calcium in the water was shown to decrease toxic effects to fish."* Based on the Arid West Technical Report, the Chronic Aluminum (total) Criterion Recalculation Value is 1954 µg/L for a mean hardness value of 272 mg/L as $CaCO_3$.

The Arid West Technical Report that recalculated the aluminum NAWQC for effluent-dependent streams as waters that are "created by the discharge of treated effluent into ephemeral streambeds or streams that in the absence of effluent discharge would have only minimal flow." Similarly, as described previously in section IV.C.2.a of this Fact Sheet, Lateral Drain No. 1 does not receive natural water flows but at times receives stormwater or agricultural runoff, and thus is effluent dominant. Therefore since the stream morphology of Lateral Drain No. 1 is similar to the streams in the Arid West Research Project, Board staff also compared the ambient water quality characteristics.

The Arid West study streams' water quality characteristics and applicable recalculated aluminum criteria from Tables 10-1 and 10-2 in their Technical Report are summarized below:

	Santa Ana River	Santa Cruz River	Salt/Gila River	Fountain Creek	South Platte River
Mean Hardness (mg/L)	188	170	388	218	280
Mean pH (standard units)	7.2	7.5	7.4	7.4	7.4
Acute Criterion (CMC): Total Aluminum (µg/L)	3464	6054	7763	3609	4826
Chronic Criterion (CCC) Total Aluminum (µg/L)	1384	2420	3103	1443	1929

Additionally, for comparison, monitoring results obtained from Lateral Drain No. 1, and other receiving waters within the Central Valley Region surrounded by similar land uses (e.g. agricultural runoff), are summarized in the following table:

	Lateral Drain No. 1 RSW-002	San Joaquin River Near Manteca	San Joaquin River Near Modesto
Hardness Range (mg/L)	72 - 546	56 - 152	50-700
pH Range(standard units)	7.1 – 8.7	6.0 – 9.1	6.7-8.7
EC Range (µmhos/cm)	51-1079[1]	113 - 1102	160-1812

1. Upstream Monitoring Location, RSW 001

As shown in these two tables, the ambient water quality characteristics of the Arid West study streams and the streams in the Central Valley Region are similar, including Lateral Drain No. 1. Thus, based on the recalculated aluminum chronic criterion in the Arid West Technical Report (shown in the previous table in this section) that ranges from 1384 µg/L to 3103 µg/L, and the WER studies conducted by the Cities of Manteca and Modesto as discussed below, the NAWQC (EPA-822-R-02-047) is overly protective in effluent dominant receiving waters such as Lateral Drain No. 1, and therefore, the NAWQC chronic criterion of 87 µg/L is not used to interpret the Basin Plan's narrative toxicity objective in this Order.

The Discharger did not conduct a site-specific study to determine the appropriate water quality criteria or whether the Arid West recalculated Chronic Aluminum (total) Criterion Value at 1954 µg/L for a mean hardness value of 272 mg/L is fully protective of the representative species found in Lateral Drain No. 1 or nearby waterbodies. However, four Dischargers within the Central Valley Region have conducted site-specific aluminum WERs (Cities of Manteca, Yuba City, Modesto, and Auburn), and the representative species used in the aluminum WER studies were *Ceriodaphnia dubia, Daphnia magna, or Oncorhynchus mykiss (*rainbow trout). The 1994 WER Guidance for determining aluminum WERs recommends using these three species in toxicity tests, and ranks them as the most sensitive species cited in the aluminum

criteria document. Moreover, these three representative species are within the resident fish communities listed in Table 2-1 of the Arid West Technical Report, and therefore are appropriate test species.

The following table summarizes the Arid West Technical Report recalculated final aluminum criterion (normalized to Hardness of 50 mg/L) for these three test species (Tables 3-4 and 3-5 of the Arid West Report).

Arid West Results					
Species	Common Name	GMAV[1]	GMCV[1]	SMAV[2]	SMCV[2]
Ceriodaphnia dubia	Cladoceran	2741[3]	4165	2466	4165
Daphnia magna	Cladoceran	10890	274	10890	274
Oncorhynchus mykiss	Rainbow Trout	No Values	No Values	10835	No Values

[1] GMAV: Genus Mean Acute Value or GMCV: Genus Mean Chronic Value
[2] SMAV: Species Mean Acute Value or SMCV: Species Mean Chronic Value
[3] No GMAV value specifically for *Ceriodaphnia dubia; this GMAV value is* for *Ceriodaphnia* sp. and the applicable SMAV = 3046

For comparison, the following table summarizes the Central Valley Region Specie Specific Toxicity Results obtained during the Dischargers' WER studies. As shown in this table, the Total Aluminum EC50 values are within the range of the mean values obtained in the Arid West Results.

Discharger (City)	Species	Test Waters	Hardness Value	Total Aluminum EC_{50} Value
Auburn	Ceriodaphnia dubia	Effluent	99	>5270
	" "	Surface Water	16	>5160
Manteca	" "	Surface Water/Effluent	124	>8800
	" "	Effluent	117	>8700
	" "	Surface Water	57	7823
	" "	Effluent	139	>9500
	" "	Surface Water	104	>11000
	" "	Effluent	128	>9700
	" "	Surface Water	85	>9450
	" "	Effluent	106	>11900
	" "	Surface Water	146	>10650
Modesto	" "	Surface Water/Effluent	150-250	31604
Yuba City	" "	Surface Water/Effluent	114/164	>8000
Manteca	*Daphnia magna*	Surface Water/Effluent	124	>8350
Modesto	" "	Surface Water/Effluent	150-250	>11900
Yuba City	" "	Surface Water/Effluent	114/164	>8000
Manteca	Oncorhynchus mykiss	Surface Water/Effluent	124	>8600
Auburn	" "	Surface Water	16	>16500
Modesto	" "	Surface Water/Effluent	150-250	>34250
Yuba City	" "	Surface Water/Effluent	114/164	>8000

The Arid West Technical Report updated and revised the NAWQC criterion based upon selected hardness values from 1 mg/L to 400 mg/L (Table 3-8). However, the report cautions that "Since the equation models hardness values that ranged from 1 mg to 220 mg of $CaCO_3$/L, estimations made beyond outside of this range should be treated with caution." As previously discussed in this section, the mean hardness value down stream of the discharge (Monitoring Location RSW-002) is 278 mg/L as $CaCO_3$; however to be fully protective, the Central Valley

Board used a conservative mean hardness value at 200 mg/L as $CaCO_3$. The Arid West recalculated Aluminum (total) Chronic Criterion Value for a mean hardness value of 200 mg/L is 1623 µg/L. Based on these findings, the NAWQC acute and chronic criteria are overly protective. However, because the Discharger did not provide any any site-specific information regarding threshold concentrations of aluminum at which acute toxicity occurs, this Order applies the NAWQC acute criterion to interpret the Basin Plan's narrative toxicity objective to protect aquatic life, and the Secondary MCL for the protection of the MUN beneficial use.

(b) RPA Results. The maximum effluent concentration (MEC) for aluminum was 530 µg/L based on 34 samples from June 2006 through June 2009, while the maximum observed upstream receiving water concentration was 1300 µg/L from a sample on 2 July 2002. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the recommended criteria.

(c) WQBELs. This Order contains final Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitations (MDEL) for aluminum of 260 µg/L and 750 µg/L, respectively, based on the acute criterion recommended in USEPA's NAWQC for the protection of freshwater aquatic life (See Table F-11 for WQBEL calculations). Based on input from the California Department of Public Health (DPH) and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are to be applied as an annual average concentration. Therefore, this Order contains new WQBELs for aluminum as an annual average effluent limitation of 200 µg/L to protect the MUN beneficial use. Due to no assimilative capacity, dilution credits are not allowed for development of the WQBELs for aluminum. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for aluminum of 260 µg/L and 750 µg/L, respectively, based on best professional judgment the recommended NAWQC for protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 530 µg/L is less than the applicable acute criterion. However, the Discharge may not be able to comply with the annual average of 200 µg/L, and therefore, the Discharger appears to be in immediate non-compliance with the aluminum 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. The annual average final effluent limitation represents a new limit and therefore, based on the Discharger's request, a time schedule for compliance with the effluent limit is established in amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO

requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

ii. Ammonia

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

The maximum permitted effluent pH is 8.3. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.3 was used to derive the acute criterion. The resulting acute criterion is 3.15 mg/L.

The 30-day average chronic criterion (CCC) was evaluated for the receiving water based on monitoring data obtained from June 2006 through June 2009. Each chronic criterion value was calculated using the rolling 30-day average pH and temperature of the receiving water. From 150 chronic criterion data values, the 99.9th percentile of the data set was selected as the most stringent criteria, which is consistent with the 1-in-3 year average frequency for criteria excursions recommended by the USEPA. As a result, the effluent CCC was 1.16 mg/L ammonia as N, which was used for development of water quality-based effluent limitations for ammonia.

The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.16 mg/L (as N), the 4-day average concentration that should not be exceeded is 2.90 mg/L (as N).

(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 not 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 MEC for ammonia was 17.1 mg/L while the maximum observed upstream receiving water concentration was 3.1 mg/L. Therefore, ammonia in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. The new facility will include nitrification facilities which will help reduce ammonia in the effluent.

(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. Section 1.4 of the SIP allows the use of a coefficient of variation (CV) equal to 0.6 when there is a lack of sufficient data points to calculate a CV value. Since the new facility has not been constructed, at this time there are no data points from the new facility and a CV value cannot be determined. Therefore, a CV equal to 0.6 was used to determine the final effluent ammonia limits for the new facility. 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), which in this case is the 30-day chronic criterion. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures (For Ammonia calculations, see Table F-12 below). This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for ammonia of 1.4 mg/L and 2.8 mg/L, respectively, based on the NAWQC (chronic criteria).

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 17.1 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the final ammonia effluent limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The existing Permit contains a floating ammonia limit, and the existing CDO contains a performance-based interim limit at 23.7 mg/L. According to State Water Board Resolution No. 2008-0025 (Compliance Schedule Policy), *"Numeric interim limitations for the pollutant must, at a minimum, be based on current treatment facility performance or on existing permit limitations, whichever is more stringent. If the existing permit limitations are more stringent, and the discharger is not in compliance with those limitations, the noncompliance under the existing*

permit must be addressed through appropriate enforcement action…" The floating ammonia limit is the more stringent; however, the Discharger cannot comply with that limit. Therefore, a compliance schedule must be included in a separate enforcement Order. The compliance schedule for ammonia is included in amended CDO R5-2009-0012-02, in accordance with CWC section 13301. The CDO requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

iii. Mercury

(a) WQO. The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) RPA Results. The maximum observed effluent mercury concentration was 0.0134 µg/L. There are no recent receiving water samples for mercury. Data from receiving water samples taken in March 2002 and July 2002 showed mercury concentrations below the criteria. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses.

(c) WQBELs. On 11 June 2009, the Central Valley Water Board adopted Resolution No. R5-2009-0059 updating the Section 303(d) list of Water Quality Limited Segments for the Central Valley Region. The Sutter Bypass has been identified as impaired for mercury in the June 2009 update.

The SIP states in Section 2.1.1 that, "For bioaccumulative priority pollutants for which the receiving water has been included on the CWA Section 303(d) list, the RWQCB should consider whether the mass loading of the bioaccumulative pollutant(s) should be limited to representative, current levels pending TMDL development…" Although there is no reasonable potential for mercury based on the currently applicable water quality objectives, mercury is bioaccumulative and may impact waterways that are impaired downstream of the discharge. Therefore, this Order contains a performance-based mass effluent limitation of 0.057 lbs/year for mercury for the effluent discharged to the

receiving water. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established or USEPA develops mercury standards that are protective of human health. This Order also requires the Discharger prepare and implement a mercury evaluation and minimization plan to address sources of mercury from the Facility. The performance-based effluent limitation was calculated as follows:

[Maximum Effluent Concentration (mg/L) * [Average Dry Weather Flow Rate] * [8.34 (conversion factor)] * [365 days] = lbs/year.

(d) Plant Performance and Attainability. Since the limitation is a performance-based effluent limitation, the Discharger can meet this new limitation.

iv. Chlorine Residual

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

When the new Facility is operational, effluent disinfection will be accomplished by a UV disinfection system and chlorine will no longer be used for effluent disinfection. The new Facility will continue to use chlorine for maintenance purposes such as in the oxidation ditch to control foaming. The threat of a chlorine release will be significanlty less with the use of UV disinfection of the effluent than with the chlorination/declorination process. However, since chlorine is highly toxic to aquatic life, this Order includes effluent limitations and monitoring requirements for when chlorine is used for maintenance purposes.

(b) RPA Results. The Discharger will continue to use chlorine for disinfection, which is extremely toxic to aquatic organisms, until the new UV disinfection system is operational with the new Facility. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to Reclamation District 777 Lateral Drain No. 1. 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 0.011 µg/L and 0.019 µg/L, respectively, based on USEPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life. The Discharger began construction of major tertiary treatment upgrades to the Facility in September 2009. The new tertiary treatment facility will include, in part, an ultraviolet light (UV) disinfection system that should be completed during the term of this permit to replace the existing chlorine disinfection system. Therefore, monitoring requirements for chlorine residual may be discontinued upon completion of the UV disinfection system

(d) Plant Performance and Attainability. The effluent limitations for total chlorine residual is carried over from the previous permit and the new Facility will use UV disinfection of the effluent which replaces the use of chlorine for disinfection. The Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

v. 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 13.8 mg/L plus nitrite (as N) of 0.77 mg/L is greater than the WQBELs, and therefore, the Discharger appears to be in immediate non-compliance with nitrate final effluent limitations. The new 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 amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

vi. 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 monthly from March through August 2005. The MEC for dibromochloromethane was 4.2 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 4.2 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 amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. The Discharger began construction of major Facility upgrades in September 2009. The new Facility will use UV disinfection of the effluent which replaces the use of chlorine for disinfection. The Central Valley Water Board concludes that

compliance with the effluent limit will be feasible as soon as the new Facility is operational.

vii. 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 March through August 2005. The MEC for dichlorobromomethane was 28.2 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 1.2 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 28.2 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 amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. The Discharger began construction of major Facility upgrades in September 2009. The new Facility will use UV disinfection of the effluent which replaces the use of chlorine for disinfection. The Central Valley Water Board concludes that compliance with the effluent limit will be feasible as soon as the new Facility is operational.

viii. Total Trihalomethanes (THM)

(a) WQO. DPH has adopted a primary MCL for total THM of 80 µg/L, which is protective of the Basin Plan's chemical constituent objective. Total Trihalomethanes is a primary MCL and a sum of four CTR constituents: bromoform, chloroform, dibromochloromethane, and dichlorobromomethane.

(b) RPA Results. The Discharger did not sample for total THM, however, monitoring results of the four CTR constituents that typically comprise total THMs are shown in Table F-9. Chloroform concentration is often used as an indication of total THM concentration. The MEC for chloroform was

150 µg/L. Additionally, three of the four CTR constituents (chloroform, dibromochloromethane, and dichlorobormomethane) had MECs greater than the individual criterion, and the MEC sum of the four CTR constituents was 182.4 µg/L, which is greater than the primary MCL for total THMs of 80 µg/L. Therefore, total THM in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL.

Table F-10. Total THMs

Parameter	Units	Criterion Basis	Criterion Standard	MEC
Bromoform	µg/L	CTR	4.3	<0.5
Chloroform	µg/L	CTR	--	150
Dibromochloromethane	µg/L	CTR	0.41	4.2
Dichlorobromomethane	µg/L	CTR	0.56	28.2
Total THMs[1]	µg/L	Primary MCL	80	182.4[1]

[1] Total THMs is the additive total of bromoform, chloroform, dibromochloromethane, and dichlorobromomethane.

(c) WQBELs. Title 40 CFR 122.45 (d) requires, in part, average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. Total THMs is a primary MCL and is a sum of four CTR constituents. The SIP governs establishment of effluent limitations for CTR priority pollutants, but Total THMs is not a CTR priority pollutant. However, for protection of human health, priority pollutants are regulated as a monthly average, and therefore, the Central Valley Water Board has determined that a similar averaging period is appropriate. Thus, this Order contains new WQBELS for total THMs as a monthly average effluent limitation of 80 µg/L.

(d) Plant Performance and Attainability. Summation of the four constituents equals a combined MEC of 182.4 µg/L for total THMs, which is greater than the applicable WQBELs. Therefore, the Discharger appears to be in immediate non-compliance with the total THMs final effluent limitation. 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 this Order This Order also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. The Discharger began construction of major Facility upgrades in September 2009. The new Facility will use UV disinfection of the effluent which replaces the use of chlorine for disinfection. The Central Valley Water Board concludes that compliance with the effluent limit will be feasible as soon as the new Facility is operational.

ix. Copper

(a) WQO. The CTR contains hardness dependent criteria for copper. Section 1.3 of the SIP contains the requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that the CTR criteria be adjusted for hardness, as applicable. In this case, the reasonable worst-case downstream hardness (e.g., represented by the minimum observed effluent hardness, see Section IV.C.2.c) was used to adjust the CTR criteria for copper when comparing the MEC to the criteria and the minimum observed upstream receiving water hardness was used when comparing the maximum background receiving water copper concentrations to the criteria as discussed in section IV.C.2., above. The criteria are presented in dissolved concentrations. USEPA recommends using a default translator of 0.96 as a conversion factor to translate dissolved concentrations to total concentrations.

(b) RPA Results. For comparing the maximum ambient background concentration to the criteria, the applicable copper chronic criterion (maximum 4-day average concentration) is 3.3 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 4.5 µg/L, as total recoverable, based on a hardness of 30 mg/L. For comparing the MEC to the criteria, the applicable copper chronic criterion (maximum 4-day average concentration) is 18 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 29 µg/L, as total recoverable, based on a hardness of 220 mg/L. The previous Order required the Discharger sample copper monthly according to Order No. R5-2004-0096. Out of the 34 samples obtained from June 2006 through June 2009, the MEC of copper was 11 µg/L, which does not exceed the lowest applicable criterion of 18 µg/L. Due to the lack of recent receiving water samples, data from samples taken in March 2002 and July 2002 were used for the RPA. The receiving water concentration measured in the July 2002 sample was 6.2 µg/L, which is greater than the lowest applicable copper criterion of 3.3 µg/L. Based on this information, the discharge exhibits reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for copper.

(c) WQBELs. Using the procedures for calculating WQBELs in the Section 1.4 of the SIP, results in final effluent limitations for total recoverable copper of 15 µg/L and 28 µg/L, as the AMEL and MDEL, respectively.

(d) Plant Performance and Attainability. Analysis of 34 effluent samples over three years of monitoring shows an MEC of 11 µg/L with the average effluent concentration of 1.9 µg/L. Therefore, it appears that immediate compliance with the copper final effluent limitations is feasible.

x. Arsenic

(a) WQO. DPH has adopted a primary MCL for arsenic of 10 µg/L, which is protective of the Basin Plan's chemical constituent objective. Arsenic is a CTR constituent.

(b) RPA Results. Effluent CTR monitoring was performed monthly from March through August 2005. All six effluent samples for arsenic exceeded the criterion and the MEC for arsenic was 28.6 µg/L. There are no recent receiving water samples, however, data from receiving water samples taken in March 2002 and July 2002 resulted in arsenic concentrations of 6.9 µg/L and 14 µg/L, respectively, which also exceeds the primary MCL for arsenic. Based on the effluent and the background concentrations being greater than the criteria, arsenic 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. Title 40 CFR 122.45 (d) requires, in part, average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. Additionally, the SIP governs establishment of effluent limitations for CTR priority pollutants. Arsenic is a CTR constituent, and therefore, the arsenic effluent limitation was established in accordance with section 1.4 of the SIP, which requires CTR constituent limitations as an average monthly effluent limitation and a maximum daily effluent limitation. This Order contains new WQBELS for arsenic as a monthly average effluent limitation of 10 µg/L and as a maximum daily effluent limitation of 20.1 µg/L.

(d) Plant Performance and Attainability. The effluent data shows that the MEC of 28.6 µg/L for arsenic is greater than the applicable WQBELs. Therefore, the Discharger appears to be in immediate non-compliance with the arsenic final effluent limitation. 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 this Order. This Order also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

xi. Iron

(a) WQO. The secondary MCL established for iron is 300 µg/L, used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

(b) RPA Results. CTR monitoring was performed monthly from March through August 2005. All six samples for iron exceeded the criterion and the MEC detected for iron was 1210 µg/L, which is greater than the lowest

applicable iron criterion of 300 µg/L. Due to the lack of recent receiving water samples, data from samples taken in March 2002 and July 2002 were used for the RPA. The receiving water iron concentration measured in the July 2002 sample was 2000 µg/L, which is also greater than the lowest applicable iron criterion of 300 µg/L. Based on this information, the discharge has reasonable potential to cause or contribute to in-stream excursion above the secondary MCL.

(c) WQBELs. This Order contains an annual average effluent limitation for iron of 300 µg/L based on the Basin Plan's narrative chemical constituents objective and the secondary MCL. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, 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. Central Valley Water Board has determined that an averaging period similar to what is used by the DPH for those parameters regulated by secondary MCLs is appropriate, and that using shorter averaging periods is impracticable because it sets more stringent limits than necessary.

(d) Plant Performance and Attainability. The effluent data shows that the MEC of 1210 µg/L for iron is greater than the applicable WQBELs. Therefore, the Discharger appears to be in immediate non-compliance with the iron final effluent limitation. 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 amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

xii. Cadmium

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for cadmium. Using the default conversion factors and reasonable worst-case measured hardness, as described in section VI.C.2.c of this Fact Sheet, the applicable acute (1-hour average) criterion is 9.5 µg/L and the applicable chronic (4-day average) criterion is 4.6 µg/L., as total recoverable.

(b) RPA Results. Order No. R5-2004-0096 included effluent limitations and quarterly monitoring requirements for cadmium and 17 samples from March 2005 through June 2009 were used for the RPA. Cadmium was detected in only one sample at a concentration of 0.15 µg/L and the other

16 samples were non-detect. Because cadmium was detected in the effluent, receiving water samples were also used for the RPA. Due to the lack of recent receiving water samples, data from samples taken in March 2002 and July 2002 were used for the RPA. The receiving water cadmium concentration measured in the March 2002 sample was non-detect and the July 2002 sample was 31 µg/L, which is greater than the lowest applicable receiving water cadmium criterion of 1.0 µg/L. Based on this information, the discharge exhibits reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for cadmium.

(c) WQBELs. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for cadmium of 3.8 µg/L and 7.6 µg/L, respectively, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. Analysis of 17 effluent samples over four plus years of monitoring shows an MEC of 0.15 µg/L. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

xiii. Manganese

(a) WQO. The secondary MCL established for manganese is 50 µg/L used to implement the Basin Plan's chemical constituent objective for the protection of municipal and domestic supply.

(b) RPA Results. The MEC detected for manganese was 43.2 µg/L. Due to the lack of recent receiving water samples, data from samples taken in March 2002 and July 2002 were used for the RPA. The receiving water manganese concentration measured in the July 2002 sample was 270 µg/L, which is greater than the lowest applicable manganese criterion of 50 µg/L. Based on this information, the discharge has reasonable potential to cause or contribute to in-stream excursion above the secondary MCL.

(c) WQBELs. This Order contains an annual average effluent limitation for manganese of 50 µg/L based on the Basin Plan's narrative chemical constituents objective and the secondary MCL. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. For secondary MCLs, Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking, 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. Central Valley Water Board has determined that an averaging period similar to what is used by the DPH for those parameters regulated by secondary MCLs is appropriate, and that using shorter

averaging periods is impracticable because it sets more stringent limits than necessary.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 43.2 µg/L is less than the applicable WQBELs. Although the monitoring data indicates that the Discharger can currently comply with the new effluent limitation, the new Facility was not designed to remove manganese and therefore, the Discharger submitted an Infeasibility Study requesting a compliance schedule to determine if additional upgrades to the Facility will be necessary to meet the limit. Therefore, a time schedule for compliance with the effluent limit is established in amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

xiv. Persistent Chlorinated Hydrocarbon Pesticides

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

(b) RPA Results. Alpha BHC, 4,4'-DDE, endrin aldelhyde, and alpha endosulfan were detected in effluent samples. Alpha BHC was not detected in a 7 April 2005 sample, but was detected above the Reporting Level at 0.022 µg/L in the 4 August 2005 sample. The pesticide 4,4'-DDE was detected below the Reporting Level in the 7 April 2005 sample, but was detected above the Reporting Level at 0.012 µg/L in the 4 August 2005 sample. Endrin aldelhyde and alpha endosulfan were not detected in the 7 April 2005 sample, but were detected below the Reporting Level in the 4 August 2005 sample. The detection of alpha BHC, 4,4'-DDE, endrin aldelhyde, and alpha endosulfan in the effluent presents a reasonable potential to exceed the Basin Plan objectives for persistent chlorinated hydrocarbon pesticides.

(c) WQBELs. Effluent Limitations for Alpha BHC, 4,4'-DDE, endrin aldelhyde, and alpha endosulfan are included in this Order and are based on the Basin Plan objective of no detectable concentrations of chlorinated hydrocarbon pesticides.

(d) Plant Performance and Attainability. Detection of individual pesticides in the effluent is typically at very low levels and close to Minimum Detection Levels. There is no reason to believe pesticides should be in the effluent and the specific constituent detected is not always consistent. However, the Discharger submitted an infeasibility analysis on 19 July 2010 requesting time to complete the new Facility, which will effectively remove any pesticides that have the propensity to adhere to solids. Analysis of the effluent monitoring samples shows detections in the effluent for alpha BHC, 4,4'-DDE, endrin aldelhyde, and alpha endosulfan, which is above the criterion of non-detect, therefore, the Discharger appears to be in immediate non-compliance with dichlorobromomethane final effluent limitations. Should the new Facility not be effective, additional 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 amended CDO R5-2009-0012-02 in accordance with CWC section 13301. The CDO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3. The Discharger began construction of major Facility upgrades in September 2009.

xv. 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 this 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. The measure of total coliform organisms is utilized as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water*

recreational activities." Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DPH 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.

(b) RPA Results. The beneficial uses of the Reclamation District 777 Lateral Drain No. 1 include municipal and domestic supply, water contact recreation, and agricultural irrigation supply. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.

(c) WQBELs. In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

In addition to coliform testing, an operational specification for turbidity has been included to monitor the effectiveness of treatment filter performance, and to immediately signal the Discharger to implement operational procedures to correct deficiencies in filter performance. Higher effluent turbidity measurements do not necessarily indicate that the effluent discharge exceeds the water quality criteria/objectives for pathogens (i.e., bacteria, parasites, and viruses), which are the principal infectious agents that may be present in raw sewage. Since turbidity is not a valid indicator parameter for pathogens, the turbidity limitations in Order No. R5-2004-0096 are not imposed to protect the receiving water from excess turbidity. The former turbidity limitations were not technology-based effluent limitations or WQBELs for either pathogens or turbidity. WQBELs are not required because the effluent does not have a reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for turbidity.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and

requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

Final WQBELs for BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AWELs and AMELs for BOD_5 and TSS of 15 mg/L and 10 mg/L, respectively, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS of 20 mg/L is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

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

(d) Plant Performance and Attainability. The Facility is not designed to provide full tertiary treatment. The Discharger began construction of major tertiary treatment upgrades to the Facility in September 2009; however, the new tertiary treatment plant has not been completed. Therefore, the Discharger cannot currently comply with the effluent limitations for BOD_5, total coliform organisms, or TSS. The existing CDO No. R5-2009-0012-01 includes a time schedule for the Discharger to meet the effluent limitations for BOD_5, total coliform organisms, or TSS, however, the Discharger submitted information from an independent schedule analyst that determined that construction is benind schedule and that completion of the project on the proposed schedule is doubtful. Therefore, an extended time schedule for compliance with the final effluent limitations for BOD_5, total coliform organisms, and TSS is included in amended CDO R5-2009-0012-02.

xvi. pH

(a) WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"The pH shall not be depressed below 6.5 nor raised above 8.5."* 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. The Discharger is upgrading the Facility to tertiary treatment and nitrification, and has requested a more stringent instantaneous maximum pH to allow less stringent ammonia limits, which are based on pH-dependent ammonia criteria.

(b) RPA Results. The Discharger monitored daily pH levels in the effluent. Based on 1162 pH samples taken from October 2006 through December 2009, the pH level exceeded 8.3 only one time and the minimum pH level was 6.7. This complies with the once in three years excursion recommended by USEPA. The 30-day average maximum pH was 8.0. Therefore, it is reasonable to require the more stringent instantaneous maximum effluent pH limit of 8.3 and allow a corresponding less stringent effluent ammonia limit. 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 8.3 as an instantaneous maximum are included in this Order based on the Basin Plan objectives for pH and Facility performance.

(d) Plant Performance and Attainability. The Facility is capable of meeting the effluent limitations for pH.

xvii. 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-11. Salinity Water Quality Criteria/Objectives

Parameter	RPA Screening Levels	Secondary MCL[3]	Effluent	
			Average	Maximum
EC (µmhos/cm)	700[2]	900, 1600, 2200	914[4]	953[4]
TDS (mg/L)	450	500, 1000, 1500	621	680
Sulfate (mg/L)	250	250, 500, 600	78	87.5
Chloride (mg/L)	106	250, 500, 600	75	118

[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 umhos/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.

[4] The average and maximum EC values are based on annual averages from July 2005 through June 2008.

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

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that 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.

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

(4) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The 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.

(b) RPA Results.

(1) Chloride. Chloride concentrations in the effluent ranged from 44.3 mg/L to 118 mg/L, with an average of 75 mg/L from five monthly samples taken from April 2005 through August 2005. The MEC exceeds the agricultural water quality goal. Due to the lack of recent receiving water samples, data from samples taken in March 2002 and July 2002 were used for the RPA. The measured chloride concentrations for March 2002 and July 2002 were 23 mg/L and 65 mg/L, respectively.

(2) Electrical Conductivity. A review of the Discharger's monitoring reports shows an annual average effluent EC of 914 µmhos/cm, with an annual average range from 850 µmhos/cm to 953 µmhos/cm. Effluent EC data is from 1083 samples from July 2005 through June 2008. These levels exceed the agricultural water quality goal. The background receiving water EC averaged 820 µmhos/cm for 152 samples taken from June 2006 through June 2009. The source water EC averaged 525 µmhos/cm for 58 samples taken from June 2005 through February 2006.

(3) Sulfate. Sulfate concentrations in the effluent ranged from 70.7 mg/L to 87.5 mg/L, with an average of 78 mg/L from five monthly samples taken from April 2005 through August 2005. These levels do not exceed the secondary MCL. Due to the lack of recent receiving water samples, data from samples taken in March 2002 and July 2002 were used for the RPA. The measured receiving water sulfate concentrations for March 2002 and July 2002 were 58 mg/L and 42 mg/L, respectively.

(4) Total Dissolved Solids. The average TDS effluent concentration was 621 mg/L with concentrations ranging from 320 mg/L to 680 mg/L. Effluent TDS data is from 64 samples from June 2006 through June 2009. These levels exceed the applicable water quality objectives. Due to the lack of recent receiving water samples, data

from samples taken in March 2002 and July 2002 were used for the RPA. The measured receiving water TDS concentrations for March 2002 and July 2002 were 480 mg/L and 490 mg/L, respectively.

(c) WQBELs.

To protect the receiving water from further salinity degradation, this Order includes a performance-based annual average effluent limitation of 1,100 µmhos/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 July 2005 through June 2008.

The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Central Valley Water Board is considering limiting effluent salinity of municipal wastewater treatment plants to an increment of 500 µmhos/cm over the salinity of the municipal water supply as representing BPTC. This Order includes a performance-based effluent limitation for EC because sufficient information does not exist for the water supply for the Discharger. The final effluent limitations for salinity based on BPTC may be modified subsequent to the collection and analysis by the Discharger of EC in the Discharger's water supply. Therefore, this Order requires quarterly monitoring of EC and TDS of the Discharger's influent and water supply (see Attachment E sections III.A. and IX.E.).

This Order also requires the Discharger to implement pollution prevention measures to reduce the salinity in its discharge to the receiving water. Specifically, the Special Provision contained in VI.C.3.a. of 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 the Special Provision contained in VI.C.3.a. requires the Discharger 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. The Discharger has instituted complete potable water metering of their system resulting in significant reduction in water usage. At this time, it is not known how this will affect EC levels. After one year following completion of the Facility upgrades, should EC levels in the effluent discharge not attain compliance with the agricultural water quality goal of 700 µmhos/cm, which applies the Basin Plan's narrative chemical constituents objective, this Order requires the Discharger to conduct site specific studies to determine the appropriate EC level to protect beneficial uses. It is the intent of the Central Valley Water Board to include a final EC effluent limitation in a subsequent permit

renewal or amendment, based on the results of approved site-specific studies.

4. WQBEL Calculations

a. This Order includes WQBELs for aluminum, ammonia, arsenic, EC, cadmium, copper, dibromochloromethane, dichlorobromomethane, iron, manganese, nitrate, alpha BHC, 4,4'-DDE, alpha endosulfan, endrin aldehyde, pH, total coliform, and total THM. 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:

$ECA = C + D(C - B)$ *where C>B, and*
$ECA = C$ *where C≤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.

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

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

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

where:
multAMEL = statistical multiplier converting minimum LTA to AMEL
multMDEL = 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-12. WQBEL Calculations For Aluminum

	Acute	Chronic
Criteria (µg/L) [1]	750	750
Dilution Credit	No Dilution	No Dilution
ECA	750	750
ECA Multiplier	0.144	0.264
LTA	108.219	198.212
AMEL Multiplier (95th%)	2.40	[2]
AMEL (µg/L)	**260**	[2]
MDEL Multiplier (99th%)	6.93	[2]
MDEL (µg/L)	**750**	[2]

[1] USEPA Ambient Water Quality Criteria
[2] Limitations based on acute LTA (Acute LTA < Chronic LTA)

Table F-13. WQBEL Calculations For Ammonia

	Acute	Chronic 30-day	Chronic 4-day
Criteria (µg/L) [1]	3.2	1.2	2.9
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	3.2	1.2	2.9
ECA Multiplier	0.321	0.780	0.527
LTA	1.011	0.906	1.531
AMEL Multiplier (95th%)	[2]	1.55	[2]
AMEL (µg/L)	[2]	**1.4**	[2]
MDEL Multiplier (99th%)	[2]	3.11	[2]
MDEL (µg/L)	[2]	**2.8**	[2]

[1] USEPA Ambient Water Quality Criteria
[2] Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-14. WQBEL Calculations For Copper

	Acute	Chronic
Criteria (µg/L) [1]	29	18
Dilution Credit	No Dilution	No Dilution
ECA	29	18
ECA Multiplier	0.367	0.576
LTA	10.65	10.37
AMEL Multiplier (95th%)	[2]	1.46
AMEL (µg/L)	[2]	**15**
MDEL Multiplier (99th%)	[2]	2.72
MDEL (µg/L)	[2]	**28**

[1] CTR Criteria (Total)
[2] Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-15. WQBEL Calculations For Cadmium

	Acute	Chronic
Criteria (µg/L) [1]	9.5	4.6
Dilution Credit	No Dilution	No Dilution
ECA	9.5	4.6
ECA Multiplier	0.321	0.527
LTA	3.050	2.426
AMEL Multiplier (95th%)	[2]	1.55
AMEL (µg/L)	[2]	**3.8**
MDEL Multiplier (99th%)	[2]	3.11
MDEL (µg/L)	[2]	**7.6**

[1] CTR Criteria (Total)
[2] Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-16. WQBEL Calculations For Arsenic

	Human Health
Criteria (µg/L)	10
Dilution Credit	No Dilution
ECA	10
AMEL (µg/L) (1)	**10**
MDEL/AMEL Multiplier(2)	2.01
MDEL (µg/L)	**20.1**

[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-17. WQBEL Calculations For Dibromochloromethane

	Human Health
Criteria (mg/L)	0.41
Dilution Credit	No Dilution
ECA	0.41
AMEL (mg/L) [1]	**0.41**
MDEL/AMEL Multiplier[2]	2.03
MDEL (mg/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-18. WQBEL Calculations For Dichlorobromomethane

	Human Health
Criteria (mg/L)	0.56
Dilution Credit	No Dilution
ECA	0.56
AMEL (mg/L) [1]	**0.56**
MDEL/AMEL Multiplier[2]	2.38
MDEL (mg/L)	**1.2**

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.

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

Table F-19. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20ºC	mg/L	10	15	20	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
pH	standard units	--	--	--	6.5	8.3
Ammonia, Total (as N)	mg/L	1.4	--	2.8	--	--
Aluminum, Total Recoverable	µg/L	260	--	750	--	--
Copper, Total Recoverable	µg/L	15	--	28	--	--
Cadmium, Total Recoverable	µg/L	3.8	--	7.6	--	--
Dibromochloromethane	µg/L	0.41	--	0.82	--	--
Dichlorobromomethane	µg/L	0.56	--	1.2	--	--
alpha BHC	µg/L	--	--	--	--	ND
4,4'-DDE	µg/L	--	--	--	--	ND
Alpha Endosulfan	µg/L	--	--	--	--	ND
Endrin Aldelhyde	µg/L	--	--	--	--	ND
Nitrate (as N)	mg/L	10	--	--	--	--
Total Residual Chlorine	mg/L	--	0.011[1]	0.019[2]	--	--
Total Coliform Organisms	MPN	--	2.2[3]	23[4]	--	240[5]
Total THM	µg/L	80	--	--	--	--
Arsenic	µg/L	10	--	20.1	--	--
Iron	µg/L	300[6]	--	--	--	--
Manganese	µg/L	50[6]	--	--	--	--
Acute Toxicity[7]	--	--	--	--	--	--
Chronic Toxicity[8]	--	--	--	--	--	--

[1] 4-day average.
[2] 1-hour average.
[3] 7-day median.
[4] Not to be exceeded more than once in any 30-day period.
[5] Instantaneous maximum.
[6] Annual average.
[7] Survival of aquatic organisms is 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay---------- 70%
Median for any three consecutive bioassays---------- 90%
[8] There shall be no chronic toxicity in the effluent discharge.

5. Whole Effluent Toxicity (WET)

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

a. Acute Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) 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 or more consecutive bioassays --------- 90%

b. Chronic Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on chronic WET testing performed by the Discharger from March 2005 through December 2008, the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding one 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. This Order contains a new narrative

chronic toxicity limitation effective 30 September 2012, the projected completion date of the new tertiary treatment plant.

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 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 effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH, and 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 design flow (Average Dry Weather Flow) permitted in section IV.A.1.g. of this Order.

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 aluminum, ammonia, copper, cadmium, dibromochloromethane, 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, total residual chlorine, endrin aldelhyde, alpha endosulfan, alpha BHC, and 4,4'-DDE, 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, arsenic, and total THMs, 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 when sampling at least quarterly. Since water that meets these requirements on an annual average basis is suitable for drinking,, 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

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order No. R5-2004-0096, with the exception of effluent limitations for diazinon, cyanide, and settleable solids. The effluent limitations for these pollutants were not carried forward from Order No. R5-2004-0096. As discussed in section IV.C.3.c. above, data collected during the term of Order No. R5-2004-0096 demonstrate there is no longer reasonable potential for the discharge to cause, have potential to cause, or contribute to an exceedance of the applicable water quality objectives for these constituents. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations, and the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be insignificant.

The Clean Water Act specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in Clean Water Act sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l). This Order contains less stringent effluent limitations for aluminum and changes the effluent limitations for turbidity, to operational specifications. This relaxation of effluent limitations is consistent with the anti-backsliding provisions, and the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be insignificant.

a. **Aluminum.** Order No. R5-2004-0096 contained effluent limitations for aluminum that were based upon the chronic criterion of 87 µg/L. However, as discussed in section IV.C.3.d.i, since that time we have learned more about the toxicity of the receiving water. Site-specific monitoring data indicated that the chronic criterion is likely overly stringent, and that the acute criterion applied to the discharge is

protective of the beneficial uses. Therefore, the relaxation of the aluminum effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations. Still, as discussed in the following section of this Fact Sheet, Central Valley Water Board conducted an antidegradation analysis that determine that the relaxation of the aluminum effluent limitation is consistent with antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16.

b. **Turbidity.** Order No. R5-2004-0096 contained effluent limitations for turbidity. The prior limitations were solely an operational check 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. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, this Order contains performance-based operational turbidity specifications (See Special Provisions VI.C.4.a in the Limitations and Discharge Requirements section of this Order) to be met prior to disinfection in lieu of effluent limitations. This Order does not include effluent limitations for turbidity. However, the revised operational specifications for turbidity are the same as the effluent limitations in Order No. R5-2004-0096, with the inclusion of a more stringent requirement for an instantaneous maximum limitation at any time. (See Special Provisions VI.C.4.a. and c., Turbidity and Ultraviolet Disinfection (UV) System Operating Specifications for turbidity specifications, respectively.) This Order moves the point of compliance from the final effluent after disinfection to an internal compliance point prior to disinfection. 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. R5-2004-0096 and therefore does not allow degradation.

c. **Copper.** Order R5-2004-0096 contained floating effluent limitations for copper that were calculated based on measured hardness of the receiving water downstream of the discharge at monitoring location RSW-002 (R-2 in the previous Order). Since adoption of Order R5-2004-0096, the average hardness of RSW-002 was 279 mg/L (as $CaCO_3$). Based on Attachment F of Order R5-2004-0096, this corresponds to copper effluent limits of 18 µg/L and 36 µg/L, as an average monthly and maximum daily, respectively. The new effluent limits for copper in this Order are 15 µg/L and 28 µg/L, as an average monthly and maximum daily, respectively. Therefore, the new limits are on average more stringent than the previous Order and are consistent with the anti-backsliding requirements of the CWA and federal regulations.

The revision in the copper effluent limitations is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution

68-16 because this Order imposes on average more stringent requirements than Order No. R5-2004-0096 and therefore does not allow degradation.

d. Cadmium. Order R5-2004-0096 contained floating effluent limitations for cadmium that were calculated based on measured hardness of the receiving water downstream of the discharge at monitoring location RSW-002 (R-2 in the previous Order). Since adoption of Order R5-2004-0096, the average hardness of RSW-002 was 279 mg/L (as $CaCO_3$). Based on Attachment E of Order R5-2004-0096, this corresponds to cadmium effluent limits of 4.5 µg/L and 9.1 µg/L, as an average monthly and maximum daily, respectively. . The new effluent limits for cadmium in this Order are 3.8 µg/L and 7.6 µg/L, as an average monthly and maximum daily, respectively. Therefore, the new limits are on average more stringent than the previous Order and are consistent with the anti-backsliding requirements of the CWA and federal regulations.

The revision in the copper effluent limitations is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16 because this Order imposes on average more stringent requirements than Order No. R5-2004-0096 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 with the exception of relaxed effluent limitations for aluminum. 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.

a. Aluminum. Proposed effluent limitations for aluminum have been relaxed. As previously discussed in section IV.C.3.d.i, Central Valley Water Board has determined that USEPA National Ambient Water Quality Criteria chronic criterion of 87 ug/L is not applicable to this discharge based upon the site-specific findings of the receiving water. Therefore, the new limits are based on the National Ambient Water Quality Criteria acute criterion of 750 ug/L. This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for aluminum of 260 µg/L and 750 µg/L, respectively. This Order also includes an annual average effluent limitation for aluminum of 200 µg/L. The previous permit contained aluminum average monthly and maximum daily effluent limitations of 71 mg/L and 140 mg/L, respectively. The previous permit also required monthly monitoring of aluminum in the effluent discharge. .

During the period from August 2005 through June 2007, monthly monitoring analytical results indicated aluminum concentrations in the effluent ranged from

77 µg/L to 3700 µg/L, with median of 228 µg/L. The Facility does not use any aluminum products within the treatment train, and there are no known industrial facilities, or other sources, that would discharge aluminum into the City's collection system. Thus the City suspected that the source of aluminum was from an illicit discharger (e.g. illegal drug lab). Therefore, the Discharger improved treatment to reduce the levels of aluminum in the effluent discharge.

Receiving water analytical monitoring results (2 sampling events in March and July of 2002) show that upstream aluminum concentrations (average of 692 µg/L) are greater than downstream concentrations (average of 265 µg/L), indicating that the effluent discharge improves the receiving water quality through dilution. Analytical results of 31 effluent monitoring samples obtained during the past three years showed aluminum concentrations in the effluent ranged from <10 µg/L to 200 µg/L, with a median at 23 µg/L. The Central Valley Water Board concludes that the proposed relaxation of the aluminum effluent limitations will not results in a reduction of water quality, since the treatment system is already in place, the Discharger employs BPTC for aluminum (e.g. aluminum is not used within the treatment system), there are no known sources of aluminum within the collection system, effluent concentrations in the discharge are consistent, and the effluent discharge will likely improve the water quality of the receiving water. Based upon the findings of the simple analysis, a complete antidegration analysis is not necessary.

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 flow and percent removal requirements for BOD and TSS. The WQBELs consist of restrictions on aluminum, ammonia, arsenic, cadmium, copper, dibromochloromethane, dichlorobromomethane, iron, manganese, nitrate, endrin aldelhyde, alpha endosulfan, alpha BHC, and 4,4'-DDE, pH, total coliform, and total THM. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations for BOD, dibromochloromethane, dichlorobromomethane, total coliform organisms, TSS, total THMs, alpha BHC, 4,4'-DDE, alpha endosulfan, endrin aldelhyde, arsenic, iron, manganese, and electrical conductivity 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.

This Order contains pollutant restrictions that are more stringent than applicable federal requirements and standards. Specifically, this Order includes effluent limitations for 4,4’-DDE, alpha BHC, alpha endosulfan, and endrin aldelhyde that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in Section IV.D.5. of this Fact Sheet. In addition, the Central Valley Water Board has considered the factors in CWC Section 13241.

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-20. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	20	--	--
	lbs/day[9]	120	180	230	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[9]	120	180	230	--	--
pH	standard units	--	--	--	6.5	8.3
Ammonia, Total (as N)	mg/L	1.4	--	2.8	--	--
	lbs/day[9]	16	--	33	--	--
Aluminum, Total Recoverable[10]	µg/L	260	--	750	--	--
Copper, Total Recoverable	µg/L	15	--	28	--	--
Cadmium, Total Recoverable	µg/L	3.8	--	7.6	--	--
Dibromochloromethane	µg/L	0.41	--	0.82	--	--
Dichlorobromomethane	µg/L	0.56	--	1.2	--	--
alpha BHC	µg/L	--	--	--	--	ND
4,4'-DDE	µg/L	--	--	--	--	ND
Alpha Endosulfan	µg/L	--	--	--	--	ND
Endrin Aldelhyde	µg/L	--	--	--	--	ND
Nitrate (as N)	mg/L	10	--	--	--	--
Total Residual Chlorine	mg/L	--	0.011[1]	0.019[2]	--	--
Total Coliform Organisms	MPN	--	2.2[3]	23[4]	--	240[5]
Total THM	µg/L	80	--	--	--	--
Arsenic	µg/L	10	--	20.1	--	--
Iron	µg/L	300[6]	--	--	--	--
Manganese	µg/L	50[6]	--	--	--	--
Electrical Conductivity	µmhos/cm	1100[6]	--	--	--	--
Mercury	lbs/year	0.057[6]	--	--	--	--
Acute Toxicity[7]	--	--	--	--	--	--
Chronic Toxicity[8]	--	--	--	--	--	--

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

[1] 4-day average.
[2] 1-hour average.
[3] 7-day median.
[4] Not to be exceeded more than once in any 30-day period.
[5] Instantaneous maximum.
[6] Annual average.
[7] Survival of aquatic organisms is 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay---------- 70%
Median for any three consecutive bioassays---------- 90%
[8] There shall be no chronic toxicity in the effluent discharge.
[9] Based on an average dry weather flow of 1.4 MGD.
[10] And 200 µg/L as an annual average effluent limitation

E. Interim Effluent Limitation

1. **Compliance Schedules for total Trihalomethanes and Arsenic.** The permit limitations for total trihalomethanes and arsenic are new limitations that are based on a new interpretation of the narrative chemical constituents objective. To implement the narrative objective, this Order contains effluent limitations for total trihalomethane and arsenic based on the Department of Public Health's Drinking Water Standards that were promulgated after September 1995. The Drinking Water Standards' primary maximum contaminant levels for total trihalomethanes became effective on 17 June 2006 and for arsenic became effective on 28 November 2008.

   The Discharger submitted an Infeasibility Analysis on 19 July 2010 (and updated on 26 August 2010) in compliance with paragraph 4 of the State Water Board's Compliance Schedule Policy. The Discharger's analysis demonstrates the need for additional time to implement actions to comply with the new limitations. Therefore, a compliance schedule for compliance with the effluent limitations for total trihalomethanes and arsenic are established in this Order.

2. **Interim Effluent Limitation for total Trihalomethanes and Arsenic.** The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent.

   The interim limitations for total trihalomethanes and arsenic in this Order are based on the current treatment plant performance. Therefore, this Order includes an interim average daily effluent limit for total trihalomethanes of 567.3 µg/L and for arsenic of 88.9 µg/L. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row).

When there are less than 10 sampling data points available, the EPA *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001), or TSD, recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of 10 data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than 10 sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5 2). Therefore, the interim limitations in this Order are established as 3.11 times the maximum observed effluent concentration of the available data.

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

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, salinity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

   This Order includes a narrative receiving water limitation based on the Basin Plan objectives that the discharge shall not cause the instantaneous natural temperature to be increased by more than 5°F. Compliance is to be determined based on the difference in temperature at RSW-001 and RSW-002. However, the receiving water at RSW-001 is often dry or without a measurable flow, and thus, representative sampling data is limited. As such, the Discharger may perform a temperature study to determine an accurate upstream temperature in order to determine compliance with the Basin Plan temperature objective.

B. Groundwater

1. **Beneficial Uses, Basin Plan, and Regulatory Conditions.** The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

   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.

2. **Discharge Locations.** The current Facility consists of a series of aeration lagoons and oxidation ponds that have potential to impact underlying groundwater quality; However, the Discharger is replacing the existing Facility (completion expected 30 September 2012), The new Facility will include one lined equalization basin, one stormwater detention basin, and one emergency storage basin. The equalization basin, which can store 2.9 million gallons, is designed for shaving peak flows and is located between the headworks and the secondary feed pump station. The stormwater detention basin is designed to collect all onsite runoff during rainfall events. The emergency storage basin can store up to 6.8 million gallons of wastewater and will only be used to capture bypassed flow during an emergency at the plant. Operation of the new Facility's stormwater detention basin and emergency storage basin is not expected to pose a potential threat to groundwater quality.

3. **Groundwater Quality.** The Facility is located southwest of the City of Live Oak in the northern portion of Sutter County. Land use surrounding the Facility is predominantly agricultural. There are four groundwater monitoring wells around the Facility identified as: MW-1R, MW-2, MW-3, and MW-4. Monitoring well MW-1R is located near the northern boundary of the Facility, MW-2 is located along the east edge of the Facility near the southeastern corner, MW-3 is located near the confluence of Reclamation District 777 Lateral Drain No. 1 and Lateral Drain No. 2 just south of the Facility, and MW-4 is located at about the midpoint along the western boundary of the Facility. The wells were constructed in early 2004.

   According to the *City of Live Oak WWTP Hydrogeologic Evaluation* report dated July 2006, by ECO:LOGIC Engineering, the local groundwater flow direction can vary by almost 360 degrees depending on seasonal conditions. The regional groundwater flow direction is generally toward the south. In order to determine background condition of the groundwater, a statistical analysis of the data from the four monitoring wells was performed pursuant to Title 27 Section 20415(e)(10) of the California Code of Regulations. Based on this analysis, MW-1R and MW-3 were determined to be most likely representative of background water quality.

   Combining the data from MW-1R and MW-3 and comparing the results to data from MW-2 and MW-4 indicates that the Facility does not appear to be impacting groundwater quality. Tables F-19 and F-20 below summarize the groundwater data from the second quarter of 2005 through the second quarter of 2010 for TDS and nitrate.

Table F-21. Summary of TDS in Groundwater

Parameter	Water Quality Objective	Statistics	Background Wells		MW-2	MW-4
			MW-1R	MW-3		
TDS (mg/L)	450[1]	No. of Samples	19	21	21	20
		Mean	594	701	557	583
		Standard Deviation	57	76	28	39
		Maximum	700	810	620	660
		95th%	682	810	600	632

		99th%	696	810	616	654

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

Table F-22. Summary of Nitrate (as N) in Groundwater

Parameter	Water Quality Objective	Statistics	Background Wells		MW-2	MW-4
			MW-1R	MW-3		
Nitrate (as N) (mg/L)	10[1]	No. of Samples	19	21	21	20
		Mean	15.0	4.5	2.8	0.4
		Standard Deviation	4.8	4.5	6.2	1.8
		Maximum	22.8	20.3	22.8	8.0
		95th%	22.5	8.5	18.6	0.4
		99th%	22.7	17.9	22.0	6.5

[1] USEPA Drinking Water Standards (Primary Maximum Contaminant Level)

4. **Groundwater Limits.** This Order includes narrative groundwater limitations in Section V.B. to protect the beneficial uses. However, there is little potential impacts to groundwater from the new facility and therefore, this Order does not retain groundwater monitoring requirements as explained in Section VI.D.2.

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 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) of this Order establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The Monitoring and Reporting Requirements (Attachment E) include influent monitoring requirements in Attachment E, section III.

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 flow, aluminum, cadmium, whole effluent toxicity, total coliform organisms, turbidity, hardness, and total dissolved solids have been retained from Order No. R5-2004-0096 to determine compliance with effluent limitations for these parameters.

3. Monitoring data collected over the existing permit term for cyanide, diazinon and settleable solids did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2004-0096. However, this Order requires quarterly monitoring of cyanide and diazinon with other Priority Pollutants for one year to characterize the effluent and receiving water for the next permit renewal.

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 [Regional Water Board] shall establish interim requirements…that require additional monitoring for the pollutant*…." All reported detection limits 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. While no effluent limitations for hardness, turbidity, dissolved oxygen, temperature, total dissolved solids, or methylmercury are necessary at this time, these constituents are critical in the assessment of the need for, and the development of, effluent limitations. Therefore, this Order requires monitoring of these constituents.

6. Effluent monitoring frequencies and/or sample type have been adjusted from Order No. R5-2004-0096 for pH, BOD, TSS, turbidity, ammonia, copper, pesticides, temperature, electrical conductivity, and mercury (total recoverable) for consistency with other NPDES permits with similar discharges.

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. Acute toxicity testing may be conducted as part of the chronic test provided the testing is in accordance with the Monitoring and Reporting Requirements (Attachment E), Section V.

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream. Receiving water sampling data was limited and therefore, some samples from 2002 were used in the reasonable potential analysis. This older data may

not be representative of current discharges and new data will be needed when the new tertiary treatment facility is operational. Therefore, the Monitoring and Reporting Requirements (Attachment E) include receiving water monitoring requirements in Attachment E, Section VIII.

2. **Groundwater** The Discharger is nearing completion of a new treatment facility and will no longer be using treatment ponds. The new facility includes wastewater structures that are lined, so there will be no threat to groundwater. The Discharger plans to maintain one pond as an emergency storage basin that has the potential to discharge to groundwater. However, the emergency storage basin will only be used intermittently and wastewater will be drained as soon as possible. Therefore, there is insufficient threat to groundwater to require groundwater monitoring.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.b-d., 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 EC, TDS, and standard minerals in the wastewater.

3. Ultraviolet Disinfection System Monitoring

UV System specifications and monitoring and reporting is required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g. viruses) in the wastewater. UV disinfection system monitoring requirements are imposed pursuant to requirements established by the DPH and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWARF's *"Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"*.

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.** This provision allows the Central Valley Water Board to reopen the permit to modify applicable inorganic effluent limitations based upon the results of the Discharger's site specific studies.

d. **Salinity/EC Site-Specific Study.** This Order requires the Discharger to complete and submit a report on the results of salinity/EC site-specific studies to determine appropriate salinity/EC levels necessary to protect downstream beneficial uses. The studies shall be completed and submitted to the Central Valley Water Board as specified in section VI.C.2.b. of this Order. Based on a review of the results of the report on the salinity/EC site-specific studies this Order may be reopened for addition of an effluent limitation and requirements for salinity and/or EC.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on whole effluent chronic toxicity testing performed by the Discharger from

March 2005 through December 2008, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a TRE Workplan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been demonstrated.

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

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

The provision requires accelerated monitoring consisting of four chronic toxicity tests 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.

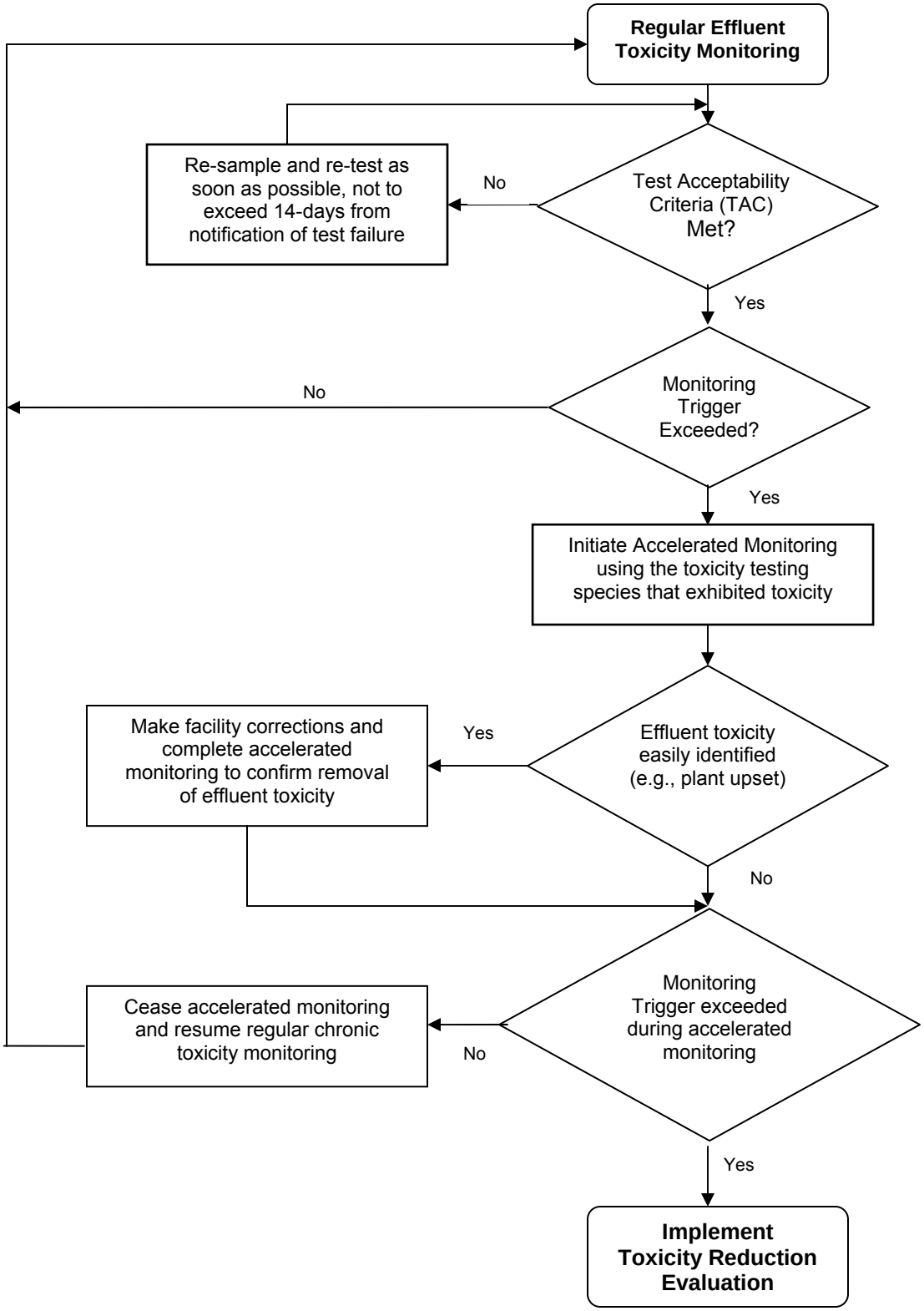
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

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/EC Site-Specific Studies.** This Order requires the Discharger to prepare and submit a report on the results of salinity/EC site-specific studies to determine appropriate salinity/EC levels necessary to protect downstream beneficial uses. The study shall determine local drinking water intakes. Based on these factors, the study shall recommend site-specific numeric values for salinity/EC that fully protect the agricultural irrigation use designation of Reclamation District 777 Lateral Drain No. 1. The Central Valley Water Board will evaluate the recommendations, select appropriate values, reevaluate reasonable potential for salinity/EC, and reopen the permit, as necessary, to include appropriate effluent limitations for these constituents. The study shall be completed and submitted to the Central Valley Water Board within 27 months following approval of the study workplan and time schedule by the Executive Officer.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** This provision requires the Discharger to prepare and implement a salinity evaluation and minimization plan, and is necessary to address sources of salinity from the Facility to protect the beneficial uses.

b. **Mercury Evaluation and Minimization Plan.** This provision requires the Discharger to prepare and implement a mercury evaluation and minimization plan to address sources of mercury from the Facility, and is necessary to protect the receiving water that is impaired for mercury.

4. Construction, Operation, and Maintenance Specifications

a. **Turbidity.** 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 tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage.

Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period; and an instantaneous maximum of 10 NTU.

b. **Emergency Pond Operating Requirements.** The operation and maintenance specifications for the emergency pond in this Order are necessary to protect the public and the beneficial uses of the groundwater, and to prevent nuisance conditions.

c. Ultraviolet Light (UV) Disinfection System Operating Requirements. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g. viruses) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by the DPH and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWRF's "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"* first published in December 2000 revised as a Second Edition dated May 2003. In addition, a Memorandum dated 1 November 2004 issued by DPH to Central Valley Water Board executive offices recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency if quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWRF UV Disinfection Guidelines). Minimum UV dosage and operating criteria are necessary to ensure that adequate disinfection of wastewater is achieved to protect beneficial uses. As described in section VII.B.4.a above, 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 operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.

Minimum UV dosage and turbidity specifications are included as operating criteria in section VI.C.4.c of this Order and section IX.D of the Monitoring and Reporting Program (Attachment E) to ensure that adequate disinfection of wastewater is achieved.

5. Special Provisions for Municipal Facilities (POTWs Only)

a Biosolids. The sludge/biosolids provisions are required to ensure compliance with State disposal requirements (Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq) and USEPA sludge/biosolids use and disposal requirements at 40 CFR Part 503.

b. Collection System. 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.

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

6. Other Special Provisions

a. Tertiary Treatment, or equivalent. To protect public health and safety, the Discharger is to comply with DHS reclamation criteria, CCR Title 22, Division 4, Chapter 3, or equivalent.

b. 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.

7. Compliance Schedules

a. The Discharger submitted a request, and justification (dated 19 July 2010. and updated on 26 August 2010) for compliance schedules for arsenic and total trihalomethanes. The compliance schedule justification included all items specified in paragraph 4 of the Compliance Schedule Policy, as discussed in Section IV.E of this Fact Sheet. This Order establishes a compliance schedule that is a short as practicable for the new, final, WQBELs for total trihalomethanes and arsenic.

b. A pollution prevention plan for arsenic and total trihalomethanes is required in this Order per CWC section 13263.3(d)(1)(C). In accordance with CWC section 13263.3(d)(3), these pollution prevention plans shall, at a minimum, meet the following requirements:

i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the

potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

iv. A plan for monitoring the results of the pollution prevention program.

v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

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 the following: Direct mailing to agencies and known interested parties; Posting of NOPH at the Facility, the Discharger's offices and the local post office; and Publication in the local paper.

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 **30 August 2010.**

C. Public Hearing

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

Date: 8/9/10 June 2011
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 (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the 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 Mr. David Kirn at 916.464.4761 or at dwkirn@waterboards.ca.gov.

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ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
4,4'-DDE	µg/L	0.012	ND	ND	--	--	--	--	--	--	Yes
Alpha BHC	µg/L	0.022	ND	ND	--	--	--	--	--	--	Yes
Alpha Endosulfan	µg/L	0.0008	ND	ND	--	--	--	--	--	--	Yes
Aluminum	µg/L	530	1300	200	750	87	--	--	--	200	Yes
Ammonia, Total (as N)	mg/L	17.1	3.1	1.17	--	--	--	--	--	50	Yes
Arsenic	µg/L	28.6	22	10	--	--	--	--	--	10	Yes
Bis (2-ethylhexyl) phthalate	µg/L	0.7	ND	1.8	--	--	--	--	--	--	No
Cadmium, Total Recoverable	µg/L	0.15	31	4.6/0.96	9.5/1,2	4.6/0.96	--	--	--	--	Yes
Chlorine, Total Residual	µg/L	NA	--	0.011	--	--	--	--	--	--	Yes
Chloroform	µg/L	150	1.7	80	--	--	--	--	--	--	Yes
Chronic Toxicity	TU	>1.0	--	1.0	--	--	--	--	--	--	Yes
Copper, Total Recoverable	µg/L	11	6.2	18/3.3	29/4.5	18/3.3	--	--	--	--	Yes
Cyanide	µg/L	ND	6.9	5.2	--	--	--	--	--	--	No
Diazinon	µg/L	ND	ND	0.05	--	--	--	--	--	--	No
Dibromochloromethane	µg/L	4.2	ND	0.41	--	--	--	--	--	--	Yes
Dichlorobromomethane	µg/L	28.2	ND	0.56	--	--	--	--	--	--	Yes
EC (Salinity)	µmhos/cm	1188	1079	700	--	--	--	--	--	900	Yes
Endrin Aldelhyde	µg/L	0.006	ND	ND	--	--	--	--	--	--	Yes
Iron	µg/L	1210	2000	300	--	--	--	--	--	300	Yes
Manganese	µg/L	43.2	470	50	--	--	--	--	--	50	Yes
Mercury	µg/L	0.0134	0.0115	0.05	--	--	--	--	--	--	Yes
Nitrate (as N)	mg/L	13.8	6.6	10	--	--	--	--	--	10	Yes

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential

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

Footnotes:
(1)
(2)

ATTACHMENT H – CONSTITUENTS TO BE MONITORED

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 section III.G., below. 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 section III.G., below.

II. Monitoring Requirements.

A. Quarterly Monitoring. Quarterly priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Quarterly monitoring shall be conducted during the third or fourth year of the permit term for 1 year (4 consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board. 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 for one year is required for dioxins and furans, as specified in Attachment H. The results of dioxin and furan monitoring shall be submitted to the Central Valley Water Board with the quarterly 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 flow proportioned composite samples unless designated as a grab sample such as dioxins and furans, Bis(2-ethylhexyl) phthalate, and other volatile compounds. 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

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]		
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
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

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]		
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
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

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]		
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
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

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]		
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
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

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]		
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
	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	^{o}F		
	Total Disolved 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

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]		

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluoresence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. The laboratory analyzing the monitoring samples shall be certified by the Department of Public Health 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.

G. 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.

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.